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THE OPHTHALMIC RECORD

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The August number of the Ophthalmic Record will contain, amongst others, an original article by J. Morrison Ray, M.D., Some Experiences with Operations for Secondary Capsular Membranes; one by S. D. Risley, M.D., The Significance of Certain Rare Forms of Ametropia; one by Robert Sattler, M.D., Uncommon Expressions of Ethmoid Sinus Disease; one by W. K. Rogers, M.D., Report of Seven Cases of Retinal Sequelæ of Diseases Affecting United States Troops in Cuba and Porto Rico. There will also appear Editorials, Reviews, Reports of Societies, and Personals and items of interest to the profession.

The Record particularly desires short practical papers on any subject connected with Ophthalmology. These will be published at as early a date as possible. It is understood that, unless otherwise arranged, original articles when accepted are contributed to the Record exclusively. Illustrative cuts will be made at the expense of the journal, and proofs for correction will be sent to authors when desired. Reprints with covers are furnished at cost. One hundred of these will be presented to authors *gratis* when a request for them is written on the original manuscript. The Record will be issued monthly, and each number will contain about 54 pages of reading matter.

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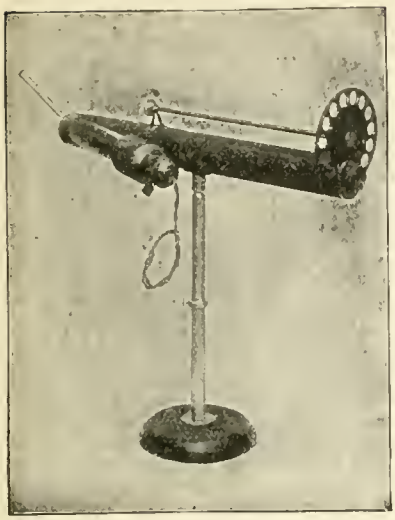

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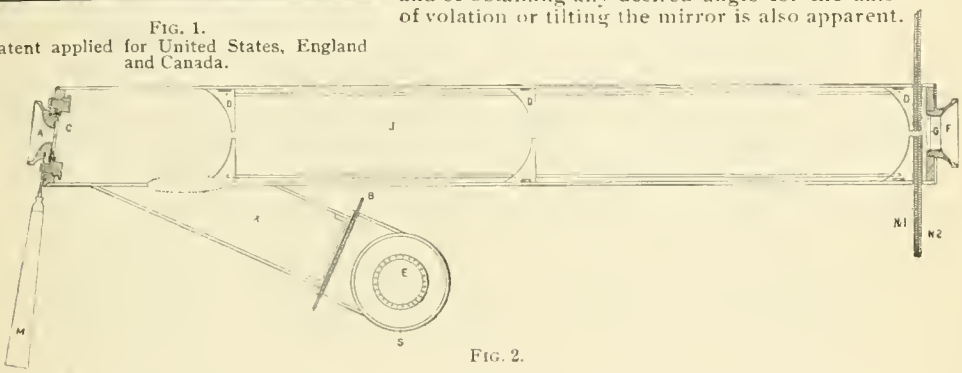

FIG. 2.

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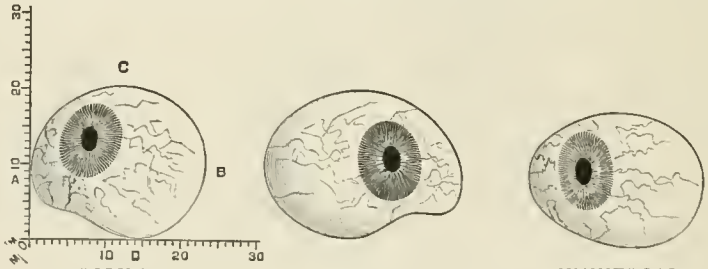

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6. Diameter of iris?
7. Diameter of pupil?
8. Color of iris?
9. White of eye clear, yellowish, or Bluish?
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THE

OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS OF OPHTHALMOLOGY.

VOLUME VIII. CHICAGO, JULY, 1899. No. 7. NEW SERIES.

ORIGINAL ARTICLES.

REPORT OF A CASE OF ACCIDENTAL INOCULATION OF THE EYEBALL WITH VACCINE VIRUS.*

BY S. POTTS EAGLETON, M.D.

Late Assistant Surgeon to Wills Eye Hospital, Philadelphia, Pa., Ophthalmic Surgeon to Marion County Surgical Hospital, Ocala, Fla.

On Friday, March 3, 1899, about 11 A.M., my friend Dr. W. V. Newsom of this city, while engaged in vaccinating the arm of a patient, forcibly broke one of the capillary tubes, containing the vaccine virus, receiving a portion of the broken tube with considerable force upon the right eyeball.

At first, little or nothing was thought of the accident, but on the Monday morning following, just three days afterward, he complained of headache (frontal) and pain radiating along the trigeminus nerve, with a general feeling of malaise and chilly sensations, associated with marked itching. In the afternoon the thermometer registered one degree of fever.

At 10 o'clock in the evening, a feeling as though a foreign body was lodged beneath the lid caused him to examine the eye, when a large conjunctival bleb was discovered.

The next morning (Tuesday) he consulted me at my office. On examination I found a bleb about the size of a small pea, situated beneath the conjunctiva, lying to the outer side and about 2 mm. from the limbus of the cornea, filled with a yellowish serum-like fluid; there were no other objective symptoms of inflammation, other than a tendency to lachryma-

*Read before the meeting of the *Florida State Medical Association* held at Jacksonville, Fla., April 19, 20 and 21.

tion, due to the irritation produced by the bleb itself. I advised eviscerating the contents, which was accordingly done, in the lower and most dependent part of the bleb.

The after treatment consisted of the frequent use of a collyrium of boric-acid gr. x to f℥.i. while awaiting further developments.

Six hours after the operation, the temperature had fallen to three-fifths of a degree above normal. On Wednesday morning the fever was one-half of a degree.

With the exception of the sub-conjunctival hemorrhage, which always follows any operation upon the conjunctiva, all other symptoms had disappeared. The hemorrhage was absorbed in the usual time and the patient made an uninterrupted recovery.

Dr. Newsom was successfully vaccinated at eight years of age, a small scar marks the site of the inoculation.

During the last four months, while a mild epidemic of smallpox was prevailing throughout the State, he repeatedly vaccinated himself on an average twice a week, but was unsuccessful in every instance, the vaccination "not taking."

The case is one of unusual interest, not only on account of its rarity, but from the fact that since the advent of the capillary tubes, containing vaccine virus and the almost universal adoption of the same by the medical profession, such accidents in the future may become more frequent in occurrence.

It is evident in this case that the general immunity of the patient's system prevented serious trouble; had it been otherwise, and a complete vaccination resulted from the inoculation, it is probable that a general panophthalmitis would have resulted, with loss of the eye.

SEPTIC THROMBOSIS OF THE CAVERNOUS SINUSES.*

BY WILLIAM E. BRUNER, A.M., M.D.

CLEVELAND, OHIO.

Clinical Assistant in Ophthalmology Medical Department of Western Reserve University; Oculist to St. Vincent (Charity) Hospital, and Cleveland City Hospital.

Illustrated.

J. H., aged 40, was admitted to Charity Hospital, Sunday afternoon, December 11, 1898, because of pain and swelling about the right eye. The family history was negative. His father died of asthma, his mother at an old age from unknown cause. His two brothers and two sisters are living and in good health. He has had the ordinary diseases of child-

*Read before the *Cleveland Medical Society*, April 28, 1899.

hood, and typhoid fever twenty years ago. Four years ago his skull was fractured by a pulley falling upon his head.

Five days before admission to the Hospital, because of toothache, which with some swelling of the jaw had troubled him several weeks, he visited one of the surgical clinics in the city. As I have since learned from the physician who attended him, an abscess was found near the alveolar border on the upper right side and opened, with the free evacuation of pus. The tooth was extracted and that too very easily, and he was told to rinse his mouth every hour with hot saline solution. Apparently the same day he began having pain in the right eye, with some swelling about it. Both symptoms rapidly increased. A physician of the neighborhood was summoned who administered morphin for relief of the pain, but all the symptoms continued to increase in severity until the fifth day when another physician was called in consultation. He immediately had the patient ordered to Charity Hospital. When I saw him there was marked proptosis of the right eye, the lids and all the surrounding tissues were enormously swollen, very tense, and dusky red in color. The edematous bulbar conjunctiva projected between the lids. The swelling was so intense and the tenderness so great that it was impossible to open the lids sufficiently to get any view at all of the cornea, or to ascertain whether he could see with that eye. The patient had not slept at all for several nights and was suffering greatly. He presented a general septic appearance and was sweating profusely. The temperature was 104 and the pulse 86.

Hoping that he had simply an orbital abscess we decided to operate at once. With the patient under ether, the lids could be opened so that a good view of the eye-ball was obtained. The cornea was perfectly clear and there was not the slightest indication of panophthalmitis. A free incision was made in the most prominent part of the upper lid, but no pus was found, though the incision within the orbit was freely enlarged by a full sweep of the knife. A similar one was made at the inner portion of the upper lid with the same result, and another one then through the lower lid along the border of the orbit, but beyond one or two drops of pus just as the knife entered, this incision was also negative. As a very free sweep was made, in all directions, with the point of the knife these incisions included practically the entire circumference of the orbit, so that I felt certain that there was little or no pus there, and it was evident that the trouble was deeper seated. Gauze strips were introduced into the incisions and moist bichlorid dressings applied. The following morning the temperature was 100, the pulse 70, and in the evening

101⅘, pulse 78. The patient was much more comfortable and the tissues about the eye were not so tense. Practically the only discharge from the wounds was a little bloody serum. The possibility of infection of the orbit through the antrum of Highmore from the alveolar abscess had been thought of, but there was absolutely nothing pointing to any difficulty there, nor was there a history of any tenderness, pain or swelling in that locality. Urinary examination showed acid reaction, specific gravity 1030, albumen present, but no sugar, and microscopical examination revealed hyaline casts and squamous epithelial cells. Examination of the pus from the incision in the lower lid showed large and small diplococci, the latter two or three times as numerous as the former. Capsules could be made out to the large ones, but not to the small ones. No streptococci nor staphylococci were found. Unfortunately cultures were not made.

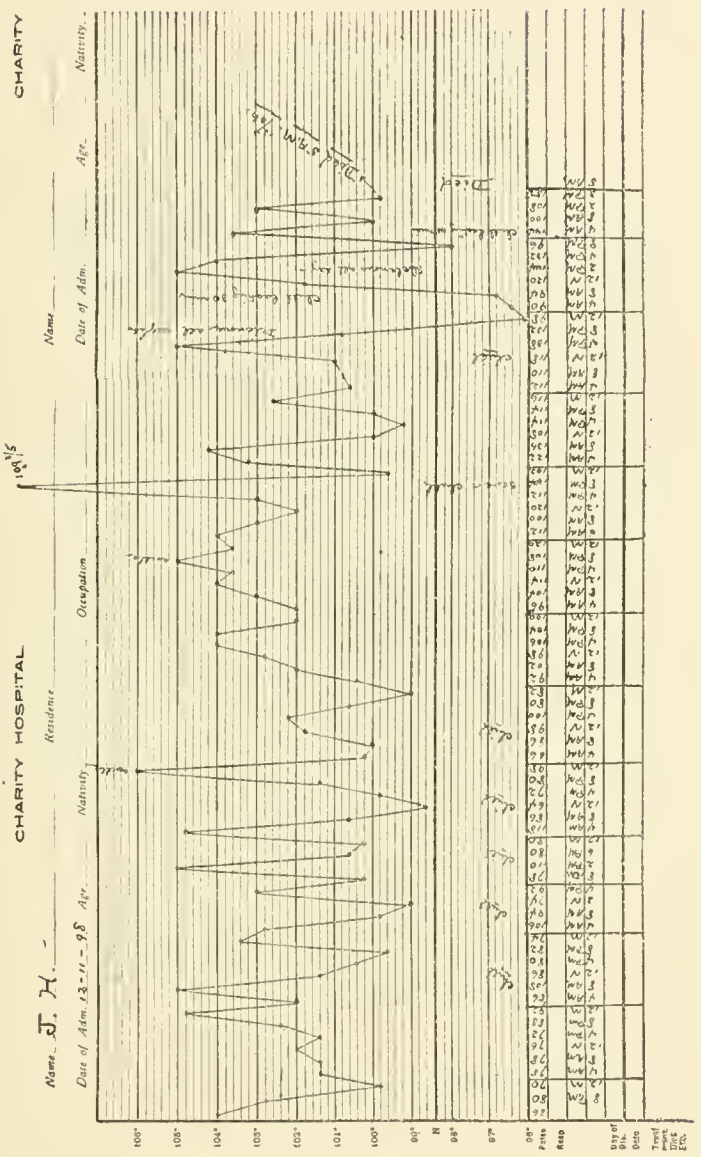
The evening of the second day the temperature went a little higher and about midnight he had a severe chill with temperature 104⅘. This was followed by profuse perspiration and when I saw him the following morning temperature was 105, pulse 108, and there was a very slight degree of redness about the left eye with a slight amount of secretion from the conjunctiva. He now began having marked chills daily with profuse sweats and great variations in temperature. (See chart.)

The exhalations from the patient were so bad as to be very discernible the moment the room was entered, though disinfectants were freely used. All the symptoms of marked general sepsis were increased, but he continued to be perfectly rational.

December 15th. Edema of lids and bulbar conjunctiva of the left eye were very marked. There was a slight amount of very fetid pus, and now our fears of the past few days seemed confirmed beyond any doubt, that it was a case of thrombosis of the cavernous sinuses. This edema rapidly increased until by December 16th it was as marked about the left eye as it had been about the right at the time of his admission to the hospital, and the eye could no longer be opened.

December 17th. The photograph herewith presented was taken this morning.

It scarcely shows the amount of swelling, which was not limited merely to the lids themselves, but extended to all the surrounding tissues. The right lids are now much less tense and can be opened more readily, while the left are considerably more tense. The patient's mind remains perfectly clear. He is totally blind even to the perception of light. The pupils are dilated and do not respond to light. The ophthalmoscope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Resp.

shows in O. D. media clear, the arteries small, the veins dilated and tortuous, the edges of the disc hidden, in fact a slight papillitis and several hemorrhages. O. S. The arteries are small, the veins slightly tortuous, but not much dilated, the edges of the disc hazy, but the disc itself not swollen. Mention should be made of the fact that at no time has there been an edema of either side of the face, as sometimes happens from obstruction of the facial vein, nor any edema over the mastoid processes.

December 19th. The patient complains of pain at base of right lung and over the liver. Friction rub can be detected. Oscultation of heart reveals a rather rough systolic sound over the apex.

December 20th. A small opening with pus exuding from it formed at the inner portion of the left upper lid. Into this opening a probe could be introduced almost an inch. The swelling about the left eye is not so tense, and the lids can now be much more readily opened. The pain in the side continues. Diarrhea develops, for which he was given some bismuth salicylate with temporary benefit. He is now bathed almost constantly in copious sweats.

December 21st. Had an unusually severe chill this evening with temperature at 8 P. M. reaching $109\frac{3}{5}$ pulse 144. This rapidly fell, and next morning at 4 A. M. was only $99\frac{2}{5}$. During this time the patient showed symptoms of collapse, but rallied under stimulants. The small opening in the left upper lid was enlarged. From it and from the incisions of the right eye a small amount of very fetid pus could be obtained at each dressing, and after being thoroughly syringed with bichlorid they were again packed with iodoform gauze. The tissues about the left eye are less tense, and especially marked is the change about the right eye in this respect. Both eyes can now be easily opened. The diarrhea is again worse.

December 22d. Ophthalmoscopic examination. O. D. The pupil is semi-dilated and responds very faintly or not at all to light. Light perception is exceedingly doubtful. The media are clear, the disc is round, decidedly pale with physiological cup. Both arteries and veins are contracted and the latter slightly tortuous. The edges of the disc now are not hidden but hazy, the whole retina is pale and slightly edematous-looking. No hemorrhages are present. O. S. The pupil is semi-dilated and does not respond to light. Light perception absent. Media clear, disc round, with physiological cup, edges hazy but not hidden, apparently no swelling of the disc, but it is rather pale, though not so much so as in the right eye. The veins are more dilated and more tortuous than in the other eye,

and at the outer portion of the disc extending on to the retina is a moderate-sized hemorrhage. The patient has been steadily losing strength.

Dec. 24th. He was delirious all night, but this morning is fairly rational. During the night there was a hemorrhage amounting to about three ounces from the incision in the lower lid of the right eye. He has not complained of pain in his chest for several days, but his respirations are more rapid, and oscultation reveals slight prolongation of expiration at base of right lung and a few moist rales. The discoloration of the right lid is now almost gone. The swelling is greatly diminished and the bulbar edema has entirely disappeared except the mass which still protrudes between the lids. There is not the slightest difficulty in opening the eye. In the left eye also the swelling is much less so that this can be easily opened, and the bulbar edema is entirely gone except the protruding mass. There is still considerable, though greatly diminished, discoloration of the lids and the veins are full, dark and tortuous. The odor about the patient has become even worse. The tongue which has been very heavily coated has gradually become thicker, so that he can scarcely protrude it. The swelling about the eyes continued to decrease still further until the morning of December 26th, when the patient died. Despite all our entreaties an autopsy was absolutely refused.

The most satisfactory article to which I have had access upon the subject of thrombosis of the cavernous sinus is in Macewens' *Diseases of the Brain and Spinal Cord* (page 245). He refers to the literature of the subject and states that Knapp was the first to clearly recognize this condition, reporting three cases in the *Archives für Ophthalmologie*, 1864, XIV, page 220. The cavernous sinus is, according to that authority, more rarely affected by thrombosis than any other of the large sinuses. Under the etiology he speaks of cases reported where the thrombosis arose from alveolo-dental periostitis following the extraction of a wisdom tooth, and Fuchs (*Text Book of Ophthalmology*, p. 585), also speaks of it arising from like cause. In more than half the cases, the thrombosis extends through the circular to the cavernous sinus of the other side so that the symptoms though unilateral at the start become bilateral. "The second eye is involved rapidly, only twenty-four hours may elapse between the initial stage and the full development of these appearances. Coincident with the development of the appearances in the second eye there may even be a subsidence of these in the eye first affected." This was strikingly so in my own case, and not only that, but even the symptoms about the second eye markedly decreased before the patient's death. As in my own case, "The orbital cellular tissue, especially along the course of the

ophthalmic vein, is usually the site of purulent collections." A surprising feature of the case reported was the length of time that the patient lingered. Macewen speaks of the duration being very variable, from a few days to several months, but absolutely all prove fatal where the thrombosis is infective as in my patient. His description of the general symptoms tallies very closely with those of my case—the temperature with its great fluctuations, the rigors and profuse perspiration, the dry-coated tongue and heavy fetid breath, the diarrhea, and also in a certain proportion of cases the septic pleurisy and pneumonia.

514 New England Building.

THE PERCENTAGE OF COLOR BLINDNESS TO NORMAL COLOR VISION AS COMPUTED FROM 308,919 CASES.*

JOSEPH A. MULLEN, M.D.
HOUSTON, TEXAS.

It is with the object of arriving at a fixed ratio between normal and abnormal color vision that I present the following statistics for your consideration, and that of the profession at large also; and, like Dr. F. A. Packard, of Philadelphia, "I admit that statistics and figures can lie, but statistics and figures differ somewhat from the human being inasmuch as statistics and figures as they grow bigger lie less, human beings are likely to lie more; hence the greater the statistics are the more accurate they are."

These statistics have been gathered from the most officially reliable sources, and from persons whose sole object has been scientific investigation, or from bureaus whose purpose it was to examine men, the acceptance of whom depended upon normal color vision, as the latter was the desideratum sought. They have also been taken from the naval departments of England, France, Russia, Austria and the United States. Sweden, Denmark, China and Japan have likewise furnished statistics, non-naval, however, as the following tables show.

Table 1 contains 308,919 male examinations for color blindness, with 5,631 of this number rejected, making a per cent of 1.82, while the same table has examinations of 15,634 females, with only 16 rejections for color blindness, giving a percentage of .01.

Table 2 presents the per cent of color blindness in respect to

* Read before the *Western Ophthalmologic and Oto-laryngologic Association*, New Orleans, Feb., 1899.

nations. The United States has a per cent of 1.53, based upon 181,169 cases (men), with that of Russia, etc.

Table 3 is composed of the percentages of Daltonism as taken from the authorities quoted, ranging from 12.5 per cent to 1.82.

I consider the statistics of the United States as furnished to me by the naval authorities at Washington to be by far the most accurate of any of those given.

I wish to express many thanks for kindness and assistance to the following gentlemen: W. K. Van Reypen, Surgeon General U. S. Navy; Assistant Adjutant-General Arthur L. Wagner, Military Information Division, Navy Department; Late J. R. Tryon, Surgeon-General U. S. Navy, and also Richard Wainwright, Esq., Chief Intelligence Office, Navy Department, all of Washington, D. C.

TABLE I.

STATISTICS ON COLOR BLINDNESS.

Dates	Observer, Country and Dept.	Males	Females	REJECTED AS COLOR BLIND		PERCENTAGES	
				Men	Women	Men	Women
1880–1896, inclusive	Med. Ex'n. U. S. Navy	161,491		2,077		1.28	
1885–1890, inclusive	Med. Ex'n. U.S. Naval Ac.	495		8		.16	
	Med. Ex'n. England Naval Ac.	3,400		18		.05	
	Med. Ex'n. England Naval Cl. & Ac.	1,500		2		.13	
1880	Com. of Opt. Society	14,846		617		4.16	
1892–1896	Med. Ex'n., France, Young Rec.	19,356		20		.01	
	Fontenay, Denmark	4,000		155		3.80	
	Holmgren, Sweden	32,165		1,019		3.16	
	Jeffries, America	19,183		802		4.12	
	Jeffries, America		14,764		11		007
1886–1897, inclusive 1897	Med. Ex'n. Russian Navy	47,530		787		2.65	
	Austria N. S. Fiume	985					
	Dr. A. Field, China, Swatow	600		19		3.16	
	Dr. A. Field, China, Swatow		600		1		.17
	S. U. S. N., Japan (soldiers)	1,200		29		2.41	
	S. U. S. N., Japan (men)	596		32		5.45	
	S. U. S. N., Japan, (2 regiments)	1,200		41		3.40	
	S. U. S N., Japan (boys)	372		5		1.00	
	S. U. S. N., Japan (girls)		270		4	.40	1.5
	Total	308,919	15,634	5,631	16	1.82	.01

TABLE II.

PERCENTAGE OF COLOR BLINDNESS ACCORDING TO NATIONALITY.

Country.	Total Examinations.		Total Rejected C. B.		Percentage.	
	Male.	Female.	Male.	Female.	Men.	Women.
United States	181,169	14,764	2,887	11	1.53	.0073
Russia	47,530		787		2.65	
Sweden	32,165		1,019		3.16	
England	19,476		637		3 2	
France	19,356		20		.01	
Denmark	4,000		155		3.80	
Japan	3,368	270	107	4	3.1	1.5
China	600	600	19	1	3.16	.17
Austria	985					
Total	308,919	15,634	5,631	16	1.82	.01

TABLE III.

PERCENTAGES OF COLOR BLINDNESS.

Authorities.	Males Per Cent.	Bibliography.
Prof. Seebeck Ger. upper class, 5 out of 40 boys	12.5	Color Vision, Jennings, 1896, p. 40
Prof. Prevost, Genoa	5.	Color Vision, Jennings, 1896, p. 40
Prof. Wilson, Edinburgh, 1 out of 17.7 persons	5.6	Color Vision, Jennings, 1896, p. 40
Prof. Favre, 1 out of 10.7 persons	9.33	Color Vision, Jennings, 1896, p. 40
Dr. Fontenay, Denmark, 165 out of 4,492 persons	3.45	Color Vision, Jennings, 1896, p. 43
Dr. J. E. Jennings, U. S.	4.00	Women, 25, Jennings, 1896, p. 40
Drs. Thompson and Weiland, 2,653 out of 71,994 persons	3.69	Norris & Oliver, Sys. Dis. of Eye, vol. 2, p.325
Drs. Thompson and Weiland, 14 out of 15,853 women	.88	Norris & Oliver, Sys. Dis. of Eye, vol. 2, p.325
Dr. de Schweinitz	3.00	Women. 20, de Schweinitz, Dis. of Eyes, 96, p. 487
Dr. Joseph A. Mullen, Houston, Texas, 5,613 out of 308,919 men	1.82	
Dr. Joseph A. Mullen, Houston, Texas, 15 out of 15,634 women	.009	

A CASE OF AMBLYOPIA DUE TO THE USE OF METHYL ALCOHOL.

BY H. MOULTON, B.S., M.D.,

FT. SMITH, ARK.

Illustrated.

The great rarity of clinical observations of this form of amblyopia justifies the present report. Knies mentions a case reported by Mengin, and Dr. Holden calls attention to cases reported recently by McCoy and Michael, and by Dr. Callan. (Arch. Oph. VXXVIII, p. 129.)

The writer's case was as follows:

On March 23, 1898, Mr. E. G. Sprague came to my office, stating that on Oct. 8, 1897, he, with thirty or forty other men in the Indian Territory, had drank wood alcohol, some of them drinking but little, but five of them, including himself, took more, perhaps something like half a pint each. All were very sick. Two men died within twenty-four hours. Two others recovered perfectly. The fifth, Mr. Sprague, became very weak, and his heart's action very feeble, but he was never unconscious. On the 9th, which was the next day after the drinking, his sight began to grow dim, and in a few hours was lost entirely. In a few days some sight returned, since when the condition has remained unchanged. The patient's age is 33 years. He is a native of the United States; a painter by trade, of fine physique and apparently in good health. He had never had any illness before, excepting painter's colic in 1885. I found the pupils dilated and irreponsive to light.

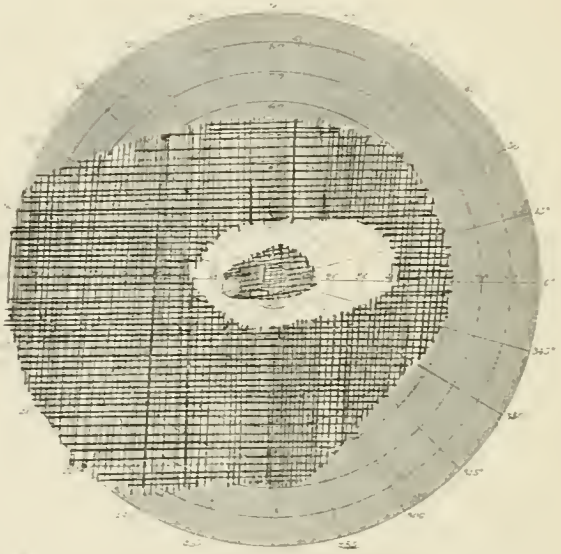
Vision, right eye Pl.; vision, left eye, fingers one foot.

Color perception was absent. The field of the left eye is shown by the accompanying diagram. It is very contracted and presents a central absolute scotoma.

The ophthalmoscope showed complete atrophy of the nerve and retina of the right eye. The vessels were mere threads, and in the upper half of the retina the arteries were almost too small to be seen. There were no retinal haze or lymph deposits along the vessels.

In the fundus of the left eye the picture was much the same, excepting that the papilla still had a slight pinkish hue, and that the vessels were not so small. Two fair sized arterial branches passed across the temporal half of the disc to the retina, one above and one below the macular region.

The central scotoma with the absence of lymph upon the vessels led me at the time to attribute the condition present to a retro-bulbar neuritis, which had been followed by atrophy. But since the publication of experiments made with wood alcohol upon dogs by Dr. Ward A. Holden (Archives of Ophthalmology, Vol. XXVIII, P. 125) another view claims attention. By using Neisser's method of staining the retina and Marchi's osmic acid method upon the nerves, he found the same changes in the ganglion cell and nerve fiber layers of the retina, and the medullary sheaths of the fibers of the optic nerve which he found in experimental



Field for form of left eye taken six months after the development of amblyopia from a toxic dose of methyl alcohol.

"amblyopia following profuse hemorrhage," and in previous studies in experimental quinine amblyopia (Arch. Ophth., Vol. XXVII, P. 583): changes which in brief may be described as follows: These agencies, *quinine*, *profuse hemorrhage*, *methyl alcohol*, cause in some way a contraction of the retinal bloodvessels, as a consequence of which, degeneration sets in in the ganglion cells of the retina and the nerve fiber layer of the retina, ascending thence along the fibers of the optic nerve and optic nerve tracts. This degeneration commences in a few hours after the amblyopia sets in. The conclusion of Dr. Holden as to methyl alcohol is as follows: "The amblyopia due to the use of methyl alcohol therefore, comes into the category of those amblyopias which are due to nutritive disturbances in the ganglion cells of the retina."

He also points out the clinical resemblance of the few reported cases of amblyopia from the use of methyl alcohol to cases of quinine amblyopia. I am unable to refer to a complete record of these cases, but in my own case there is one marked clinical difference, viz., the condition of central vision. It is true that in my case there was a very much contracted field, as narrow in fact as is usually found in severe cases of quinine amblyopia, but in the center of this there was quite a large scotoma corresponding to the distribution of the papillo-macular bundle of optic nerve fibers, such a scotoma as is produced by retro-bulbar neuritis of toxic origin. Now it is well known that loss of peripheral vision with more or less perfect preservation of central vision is characteristic of quinine amblyopia. Yet the ophthalmoscopic picture was like that I have observed in one case and which is so well known in quinine amblyopia.

In the light of Holden's experiments, then, and the clinical phenomena, it is probably safe to assume that ischemia of the retina and retro-bulbar neuritis were both caused at once by the toxic effects of the methyl alcohol, and that atrophy followed. The central scotoma would naturally be explained by the retro-bulbar neuritis and degeneration of the macular bundle. The peripheral loss of vision would find explanation in the ischaemia and consequent degeneration of the deeper layers of the retina.

The question might arise, but cannot be determined with our present light, whether the retro-bulbar neuritis might have been the cause of the obliteration of the vessels and the peripheral changes in the retina. This view would be more naturally entertained had the atrophy been as complete in the left eye as in the right. But the condition of the left eye with its contracted field and narrowed vessels, as before pointed out, in spite of the evidences of retro-bulbar neuritis, which may be taken for granted, sustains the view which is in accord with the very logical conclusions of the characteristic accurate observations of Dr. Holden.

FOREIGN BODY IN THE IRIS.

GEO. H. BICKNELL, M.D.

OMAHA.

The case of foreign body in the iris reported by Dr. M. T. Jay in the May number of this journal brought to mind a somewhat similar case occurring in the practice of Dr. H. Gifford of this city.

The patient, a man aged 55, came as an applicant for pension, on

account of poor vision in his left eye, which was practically blind from opacities in the lens and choroidal changes at the macula.

Right eye vision, with refraction corrected, $\frac{20}{20}$.

Upon examination the right iris was seen to be slightly discolored, with pupil the size of a small pin head and absolutely immovable.

There was a small light-colored body about 2x1 mm. in size adherent to the anterior surface of the iris, very close to the pupillary margin.

He gave a history of having injured the eye nineteen years ago while hammering upon what he termed a "nigger head" (*i. e.*, an erratic boulder.)

He said that the eye was moderately inflamed for a few days following the injury but that it soon cleared up and had not troubled him since. Functional tests indicated that the eye was perfectly healthy aside from the close adhesions of the iris to the lens and the abnormally small pupil: but the latter was so extremely small that no satisfactory view of the fundus could be obtained. The man's main complaint regarding this eye, was, that by poor light his vision was reduced out of all proportion to the reduction of the illumination; this of course, is explained by the very small immovable pupil.

There can hardly be a doubt that the foreign body in this man's eye was a small bit from the boulder upon which he was hammering, as had it been iron there would have been further changes in the eye. Under the circumstances an operation was not deemed advisable.

THE QUESTION OF OPERATION ON THE INJURED EYE IN SYMPATHETIC OPHTHALMIA.*

BY ROBERT SATTLER, M.D.,
CINCINNATI, OHIO.

Sympathetic ophthalmia evokes a never ending interest, for it is established without question that no more uncertain or unmanageable lesion is known, one that sooner or later, with infallible certainty, terminates in hopeless destruction of vision.

If the opportune time for preventive surgery has been lost or was overlooked and sympathetic disease is in progress, almost without exception treatment is useless, and blindness alone certain.

Common experience abundantly supports the general statement that enucleation of the injured eye prevents an outbreak of this treacherous lesion in the uninjured one, if practiced before it is established.

*Read before *Section on Ophthalmology, American Medical Association*, Columbus, Ohio, 1899.

If this is deferred, however, until after sympathetic disease in the fellow-eye has come about, it can influence its subsequent progress at best only indifferently, and in most cases, even unfavorably. (Opinions are still at variance on this point).

In exceptional instances of these almost uniformly fatal cases in which enucleation of thê injured eye is too long neglected, and sympathetic disease of the fellow-eye pushes its inexorable course to total and hopeless blindness, it happens that the final outcome for the injured eye (and this is the surprising feature) turns out to be a trifle more favorable. It may even recover with a prospect for restoration of a fractional share of vision through subsequent surgical interference.

It is this clinical fact mainly together with the bare chance of saving by a rational conservatism, the smallest fraction of practical vision in these next to hopeless cases by avoiding, too late, the removal of the injured eye, which has aroused grave doubts concerning the expediency of radical surgery after once the fellow-eye is affected.

These are among the reasons, the last a dominant one, why the question: "Is enucleation, or other equally reliable substitute, for the injured eye, necessary or expedient in those cases in which sympathetic disease is already in progress?—even at present, must be considered an open and unanswered one. Nevertheless there are indications which cannot be gainsaid, and which declare almost at once in favor or against such interference. Certain injuries attended by penetration or puncture of the globe, laceration or rupture of the sclera, etc., which have excited sympathetic disease, but are not accompanied by unbearable suffering, should not be recklessly enucleated. So long as this is not done, there remains the shadow of a chance that it may furnish later on the only opportunity for a fragmentary restoration of sight.

In those cases of cyclitis dolens traumatica, with reduced tension and atrophy of the globe, or after unsuccessful cataract extractions, or if the eye harbors a concealed foreign body, there cannot arise a difference of opinion concerning the advisability of enucleation. It must be done promptly.

This is why on the one hand it may be expedient to temporize, and on the other to practice it, without hesitation, even though it is done with the conviction that it will influence unfavorably the progress of the sympathetic lesion which has invaded the other eye.

These well-known and almost generally accepted conclusions lead to the living question at issue.

Is it ever justifiable to practice extirpation, evisceration, or optico-

ciliary neurectomy of the injured eye when once sympathetic ophthalmia is in progress, after the results of individual and common experience have taught us that in exceptional cases only, the primarily injured eye may ultimately recover with a better chance for some restoration of vision than the one secondarily affected? What can enucleation or its substitutes at this stage of the lesion accomplish? And what are its rational indications and counter indications for these rare cases belonging to this unfortunate category of ocular lesions?

In common with others, my earlier experiences (with far more frequent opportunities for observing these cases than at present) led me, for many years, to practice enucleation in most cases of this class as a possible helpful measure to modify favorably, and also in some cases with a vain hope that it might stay the progress of the fatal lesion. The uselessness, even to influence in any manner favorably, the disastrous course of sympathetic disease, the life-long deformity which the removal of the injured eye entailed, especially with children, to which were added occasional observations which left no room for doubt that the operation, instead of exerting an indifferent influence for good, really brought unmistakable harmful results for the sympathetically affected eye, brought about a change of opinion. These conclusions forced me to restrict it to those cases in which the injured eye was and would remain a source of uncontrollable suffering, either because it harbored a concealed foreign body, or it could be assumed that the pathological process which was in progress would sooner or later force it as a measure of necessity.

For a number of years my management of these cases was in accordance with these conclusions gathered from clinical observation and surgical experience. I could not at that time or since then convince myself even in those few cases, in which, after enucleation of the injured eye, the sympathetic disease became more accentuated, that this was in consequence of the operation, for the treacherous and uncertain course in other cases without such interference had afforded me repeated confirmation that its course and final results were just as fatal or even more so.

What did convince me and impressed me as similar experiences impressed others with the determination to practice the most conservative surgery, were three observations of cases, two of rupture of the sclerotic (with dislocation of the lens under the conjunctiva in one), and a third with punctured wound of the sclerotic. All had excited vicious and destructive sympathetic disease, and in all the injured eye recovered a certain degree of vision through subsequent surgical interference.

It is upheld, on rather limited evidence it is true, (for these cases, as

we all know, are fortunately becoming less and less frequent because of the growing intelligence of the general practitioner and the public as well), that enucleation is justifiable in certain cases if practiced during the *earlier* stages of sympathetic ophthalmia.

In support of this statement brief mention of a case which bears upon this point is made:

December 2, 1896, L. O. W., age 24, Logansport, Ind., was struck by a piece of iron in his right eye. January 12th, or forty-one days after the injury to the right eye, the left eye became suddenly and seriously affected. January 14th he came to me. Cyclitis plastica dolens, with reduced tension and exquisite tenderness, was found in the right or injured eye. Plastic irido-cyclitis with atresiæ pupillæ, intense photophobia and reduction of vision to counting fingers at three feet with difficulty, was noted of the uninjured eye. On the same day I removed the right eye and vigorous treatment consisting of leeches, absolute rest in bed, atropine, etc., for the left eye was commenced. After weeks of unremitting attention there came about a subsidence of inflammatory symptoms with perception of light only.

In June, 1897, an iridectomy was attempted and failed. In the autumn of 1897 another attempt to open the dense inflammatory cicatricial union of iris and lens-capsule was made with iris and capsule forceps, Reverdin forceps or hook were alike unsuccessful. At another operation with the knife—a narrow Graefe—an attempt was made to cut out a portion of the iris and lens-capsule, and this was successful. During the intervening months the lens underwent partial absorption. Tension remained low, but not excessively so; perception of light was fair.

In December I made a discission with De Wecker's scissors with indifferent result, but there was perhaps a small opening in the dense cicatricial partition. He had only light perception. Shortly after this another discission with De Wecker's scissors was done and a fair-sized opening was made, which subsequently contracted. It resulted, (test made May 10, 1899), in a restoration of sight which enables the patient to count fingers at two feet, and he can follow his guide without difficulty or assistance.

This is the only case in my experience which stands out as a solitary success, if so it can be considered, among countless failures in other cases to restore practical vision to the sympathetically affected eye, with or without enucleation.

Did early enucleation accomplish or aid in bringing about this

favorable result? My conclusion is that it did not. It was practiced because it was indicated as a relief measure and because the eye was hopelessly degenerated and a source of tedious suffering. If, instead of increasing phthisis bulbi (which was present under the clinical picture of irido-cyclitis plastica), the globe had preserved its shape and tension, if the injury had been a punctured wound without marked pyogenic infection and the penetration of a foreign body could be excluded, enucleation in my judgment would not have been justifiable, for it would have taken away the last chance that this, the injured eye, might so far recover that a degree of useful vision might be restored to it in the end.

To summarize briefly the principal points: Enucleation of an injured eye (particularly in rupture of sclera, punctured wounds of globe with extension to uveal tract) when active sympathetic ophthalmia of the fellow-eye has been excited, is not justifiable for the reason that after a complete subsidence of inflammatory reaction in both eyes the *injured eye* alone may offer a chance for partial restoration of sight.

Enucleation of an injured eye which has excited sympathetic ophthalmia is justifiable,' often a measure of necessity, in cases of traumatism produced by the lodgment in the eye of a foreign body which cannot be localized. If such eyes are a source of continued suffering, the enucleation should be speedily done, but without hope or prospect that this will influence the course of the inflammatory disturbance.

Enucleation of the injured eye with the hope that it will influence favorably the progress of sympathetic ophthalmia has little or no foundation in accurate clinical observation or surgical experience. There certainly is no reliable proof that it has ever arrested, or even retarded, the fatal course once begun. It must therefore be considered an uncertain measure of interference which expediency even can only counsel in a small fractional number. It must furthermore be added that there are no reliable data that it is harmful in the sense that it excites a more rapid or more disastrous course in the sympathetically affected eye. This is more likely due to the inherent degenerative activity which varies in each case, so far as its destructive fatality is concerned.

THE MYDRIATIC ACTION AND VALUE OF EUPHTHALMIN.

BY EDWARD JACKSON, A.M., M.D.

DENVER, COLO.

Illustrated.

Euphthalmin hydrochlorate, a synthetic product said to be closely related to "Eucain B.", was brought to the notice of ophthalmologists in 1897 by D. Treutler[1], who found it to be a strong mydriatic, brief in its action, and producing no unpleasant effects. His observations have been in the main confirmed by Vossius[2], Schneider[3], Ball[4], Winselmann[5], and Darier[6]. It is worthy the general attention of ophthalmologists, both on account of its real merits, and because of some poorly founded claims that have been made for it.

It has been used in solutions of from 1 to 10 per cent in distilled water. In my hands it has caused less conjunctival discomfort than a solution of cocain of equal strength, and about the same sensation as a similar solution of homatropin. It does not, however, cause the subsequent injection of the conjunctival and pericorneal vessels so noticeable after the use of homatropin. The 5 per cent solution, which I have chiefly employed, has no perceptible effect on the visible vessels, the sensibility of the parts, or the width of the palpebral fissure.

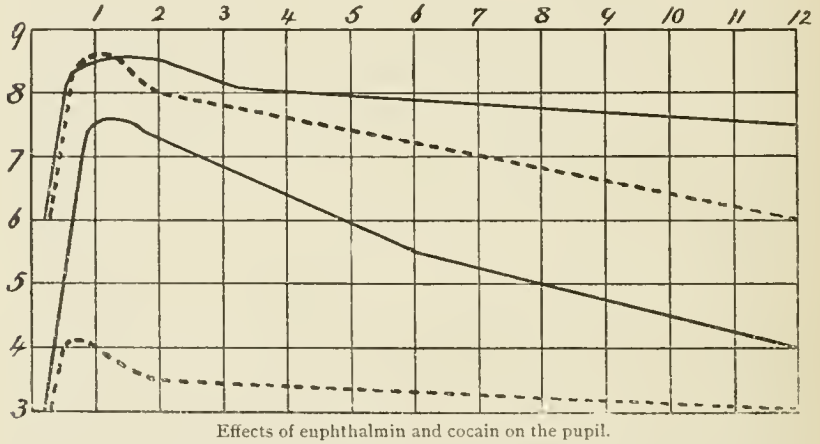
Within fifteen minutes after the instillation of a 5 per cent solution, the pupil begins to dilate, dilates very rapidly for fifteen or twenty minutes; and then continues to slowly increase in size until, at a little more than an hour after instillation, it reaches the maximum. By the end of the second hour it has begun to perceptibly contract. The recovery is at first rather rapid, then slower; and is complete in about twenty-four hours.

In no case have I found the pupil entirely fixed and unresponsive to light, even when the drug was producing its maximum effect; and the reflex to light is regained more rapidly than is the normal size of the pupil by feeble illumination.

These facts are illustrated by the accompanying diagram in which the figures on the left indicate the diameter of the pupil in millimeters, while the figures at the top indicate the number of the hours after the instillation. The upper solid curve shows the diameter of the pupil by feeble

illumination, such illumination as gives a diameter of 6 mm. to the normal pupil. The lower solid line (running up to 7.5 millimeters) gives the diameter of the pupil on exposure to light, which causes the normal pupil to contract to 3 mm. For comparison, the dotted lines show the diameters of the pupil under similar conditions of feeble and strong illumination, after the instillation of a 5 per cent solution of cocain hydrochlorate[1].

Along with the dilatation of the pupil, there occurs a certain paresis of the accommodation, which begins, reaches a maximum, and passes off with the mydriasis. With the 5 per cent solution of euphthalmin, about one-fourth of the total accommodation is lost at the time of maximum effect. Thus with normal accommodation of 8 D. the drug reduces it to



Effects of euphthalmin and cocain on the pupil.

6 D. With the 1 per cent solution the accommodation is reduced by about one-twelfth of its total amount. This is three or four times as much impairment of accommodation as is produced by solutions of cocain of equal strength. It is about the impairment of accommodation that is produced by a solution of homatropin hydrobromate one twenty-fifth as strong.

The mydriasis produced by euphthalmin seems decidedly greater as compared with the accompanying cycloplegia, being equal to that produced by a solution of homatropin one-tenth as strong.

The period of its influence is also more brief: being on the average one-half or two-thirds that of homatropin. Statements that it is entirely passed off in four, six or twelve hours are probably incorrect. But in six or eight hours the accommodation and the contraction of the pupil to strong light have usually recovered so far as to leave but little annoyance

from its action; and if both pupils were under its influence, it would be easy to suppose that recovery was then almost complete.

The sphere of usefulness of euphthalmin appears quite limited, and in that sphere it can be substituted by a judicious combination of cocain and homatropin. But still, for certain uses, it is superior to any other single mydriatic.

To dilate the pupil for diagnostic purposes, when it is desirable to examine the crystalline lens and vitreous by strong oblique illumination, or to use direct sunlight to examine with the ophthalmoscope an eye with hazy media, euphthalmin is, on account of its brevity of action, superior to any other drug.

To dilate the pupil when iritis is feared, but is not certain, it may be preferred to one of the slower mydriatics, as entailing less subsequent annoyance if iritis be not present. It is also distinctly superior to cocain for testing the possible improvement of vision by a mydriatic, in incipient nuclear, polar, or lamellar cataract; because for the time it holds the pupil dilated even in strong sunlight, whereas cocain does not greatly diminish the light reaction of the pupil.

For dilating the pupil in the dark room, for the ordinary ophthalmoscopic examination, or for skiascopy, it is distinctly inferior to cocain. While giving no more satisfactory dilatation during the examination, it does give far greater and more annoying dilatation when the eye is afterward exposed to light. That some have especially praised euphthalmin for this particular use would seem to argue that they were carried away by a novelty, or were not fully acquainted with the value of cocain.

Euphthalmin shares with the stronger mydriatics a diminished power to dilate the senile pupil. In this direction the superiority of cocain is very noticeable[7].

The claim that euphthalmin is free from danger of causing glaucoma, should be met with skepticism. The claim has been put forward for Duboisin, and Homatropin, and has for them been proven false[8]. No one has yet reported a glaucomatous attack following the use of euphthalmin; but the report will undoubtedly come later, if the drug is widely used. It has this advantage over the stronger mydriatics, that the brief mydriasis that it produces may not so often last long enough to develop increased ocular tension. But its mode of action seems quite similar to that of atropin and homatropin; and it is possible that the relatively greater mydriasis it produces, as compared with the cycloplegia, may be fraught with a correspondingly greater danger. At any rate, without wide and prolonged experience with it, we are not justified in ranking euphthalmin

with cocain as a comparatively safe mydriatic to use in cases of impending glaucoma.

Euphthalmin produces no perceptible effect on the cornea, and is on this account distinctly superior to cocain for diagnostic purposes. The advantages of both drugs may be largely attained, and their disadvantages reduced to a minimum, by a solution containing 1 per cent of each—

Euphthalmin Hydrochlorate	1
Cocain Hydrochlorate	1
Distilled Water	100

When euphthalmin is used alone, solutions of 2 to 5 per cent will be found most valuable. Weaker solutions are not efficient, and stronger ones do not cause a materially greater effect.

Conclusions.—Euphthalmin acts on the eye as a true mydriatic. Its influence is more feeble and brief than that of homatropin.

Its influence on accommodation is relatively slight; so that it has no practical value as a cycloplegic; and its cycloplegic influence causes but trifling annoyance when it is used as a mydriatic.

It is the best agent we have to produce brief dilatation of the pupil under a strong light; and stands next to cocain in value for dilating the pupil for the ophthalmoscopic examination.

Combined with cocain it produces a satisfactory mydriasis for the examination of the eye, with the least annoyance to the patient and the most rapid recovery.

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THE

OPHTHALMIC RECORD.

A MONTHLY REVIEW OF THE PROGRESS OF OPHTHALMOLOGY.

VOLUME VIII. CHICAGO, JULY, 1899. No. 7. NEW SERIES

EDITORIALS.

THE CONDUCT OF HETEROPHORIC CASES.

At the January meeting of the *Ophthalmological Section of the New York Academy of Medicine* a very interesting paper was read by Dr. Henry D. Noyes on "Muscular Insufficiencies," which, coming from a man of his intelligence and experience, must command attention. The discussion which followed in which Drs. Gruening, Duane and Knapp participated was equally instructive.

The paper and discussion quite fairly mirrors the most advanced thought on the subject, and squarely advocates a middle or conservative position between those extremists who industriously tenotomize a great majority of their confiding patients, and the ultra-conservatives who consider a tenotomy for anything except strabismus a good and sufficient cause for a suit for malpractice. We regret that any argument in favor of a reasonable or medium ground is still necessary. We had hoped that time would dampen the ardor of the extremists on either end of this argument, but this blissful condition may evidently only be observed on the distant horizon of the future. The graduated tenotomy habit seems to be hard to shake off, and when once a surgeon falls a victim to its seductive theories, his fate seems to be sealed, at least for many years.

Most ophthalmologists believe in tenotomies for heterophorias; but it is hoped and believed that only a chosen few believe in them so generally and enthusiastically as to almost constitute a separate school of medicine. It is hoped that most ophthalmologists will endeavor to take a broad and comprehensive view of their patients' condition not forgetting

the well-established clinical fact that nearly all heterophoric conditions either disappear entirely or become harmless under a thorough correction of ametropia, and a restoration of any existing ocular, local, or general ill health. And yet we regret to say that there are still surgeons who confide very little in their ophthalmoscopes, and who pay but little attention to the possibilities of refractive errors, irritable spines, misplaced uteri, neurasthenias, emotional and hysterical natures, etc., etc., but study with great promptitude and assiduity the facial expression, poise of the head, and ocular equilibrium, and rarely fail to discover a heterophoric defect, requiring an immediate and nicely-adjusted graduated tenotomy which will probably have to be repeated as long as the physical and financial condition of the patient will endure the strain.

Dr. Noyes emphasizes one point that has probably been borne in upon the minds of most surgeons who have given the subject careful and unbiased consideration—viz., the impracticability of the so-called "*graduated* tenotomy." The absurdity of nicely severing a few of the median fibers of the tendon, to correspond with the degree of heterophoria seems manifest to the average mind. That this hair-splitting theory is not always followed by thoroughly accurate results is sustained by the evidence of one well-known surgeon, who told the writer in a burst of confidence that he had performed graduated tenotomies eighteen times on one eye, and then was compelled to forswear his allegiance to the true doctrine, by committing the unpardonable sin of cutting the tendon off completely. It seems reasonably certain that when the lateral fibers of a muscle are left intact, and only the median fibers severed, that the power of the muscle, while it might be temporarily impaired, will be ultimately restored to its original condition, by the reattachment of the severed fibers to their former position. In all probability most surgeons who deem a tenotomy for heterophoria necessary at all, sever the tendon completely, by delicately drawing it out with the forceps (not the hook) and cutting it off close to the sclera, without touching the capsule of tenon. The writer desires to confidentially express the opinion that this is the identical operation performed by most, if not all, the advocates of *graduated* tenotomies. If this is true, it leaves the "Graduated Tenotomopaths" in the same position as the "Homeopaths"—with nothing left for their delectation but a name.

Dr. Noyes also expresses the belief that much care should be taken in the performance of advancement operations. This also seems a wise precaution, for it is certainly impossible to exactly determine just how much effect will be obtained, by any kind of an operation for advancement, and

while a good cosmetic effect may be produced, a heterophoric result may be obtained much more troublesome than the original condition.

In fact it is an extremely delicate matter to meddle with the ocular muscles, and this profitable specialty of ophthalmology should only be assumed by those with proper information and judgment, a mental Arcadia, it may be fairly claimed, only possessed by the few.

In conclusion, the writer desires to state that he believes in tenotomies, not in the so-called *graduated* tenotomies; but he believes in judicious and timely tenotomies, performed only when all other means of relief have proven futile. If tenotomies are held in abeyance until this has occurred, but few will be performed by conscientious surgeons.

F. A.

ON THE DANGERS OF PSEUDO-THERAPEUTICS IN OPHTHALMOLOGY.

The necessity, oftentimes, arises for active measures in the treatment of diseases of the eye, as for example those acute corneal processes, which are rapidly progressing, and due to infection, suggest that some concerted action should be taken by the ophthalmologist whereby those who are over-confident in the efficacy of the so-called absorption methods, healing by the aid of Christian Science, and fads based upon false premises, so-called religious belief and pseudo-science, may realize the dangers arising from time that has been thus lost.

It should, likewise, be more generally known that there are many charlatans who deliberately apply their secret methods and remedies during certain conditions, without benefiting the patient in the least, so that a fresh start has, of necessity, to be made, oftentimes at a charity clinic. In view of these facts, and as regards the art of healing by Christian Science, as applied to the treatment of diseases of the eye, too much stress can not be laid upon the dangers arising from such delay, especially in iritis, where complications from rapidly forming synechiae may certainly be laid to the door of neglect. It is hard to realize that such a large number of people in so many widely separated communities are willing to put in jeopardy, for a single moment, so precious a special sense as eyesight, unless it is another suggestion of the foresight of the late "eminent showman," who ascribed his financial success to the satisfaction the public derived in being humbugged.

The deaths of persons, locally prominent, recently noted in some of the newspapers as having occurred at many localities, distant one from

another, show how firmly belief in this method of healing is becoming engrafted upon the people generally, and how difficult it will be to eradicate it. This delusion, if it be a delusion, is constantly gaining strength, and the accessions to the ranks of the believers constitute, as a class, not merely those who have recourse to the charlatan, but are also people of wealth and intelligence. It may not be generally known that a "mother church" has been built, and paid for, at a cost of two hundred thousand dollars, in Boston, and that three nearby branch churches have been established, and notwithstanding this drain upon its membership, the "mother church," with a capacity of fifteen hundred, is crowded at all its services. It is a remarkable fact that the prayer and meditation of a chronic sufferer should have resulted in this new application of the meanings of the bible, and the issue of some two hundred thousand volumes, which have become the text book of Christian Science, and is read in connection with the Bible at all their services in some three hundred and fifty churches, and which to the casual reader "is a mass of unmeaning words," while those who "study and believe declare it to be as clear as Revelation," to quote a recent daily newspaper. There is no especial objection to their caring for the spiritual welfare of an individual if he be inclined that way, but the danger lies in their invasion of the domain of medicine, and especially surgery, and endeavoring to apply their peculiar theories in the healing of disease. The recent declaration of war by the New York Board of Health against unregistered persons practicing medicine, has brought this belief before the public eye, and has started all over the country a wave of discussion regarding the merits and demerits of Christian Science. As the matter now stands, here in Massachusetts, the Legislature seems inclined to take the favorable view that Christian Scientists claim that the science of healing diseases is a part of their religion, and to do this healing they are not obliged to register, and are not subject to an examination as to their qualifications, and would only be proceded against legally in cases of extreme neglect. The section of the law which bears directly upon the question of penalty for practicing without being registered reads as follows:

"Whoever, not being registered as aforesaid, shall advertise and hold himself out to the public as a physician, or surgeon in the commonwealth, or appends to his name the letters M.D., or uses the title of doctor, meaning thereby Doctor of Medicine, shall be punished by," etc., and under this law the various district attorneys do not feel inclined to attack the Christian Scientist. The Massachusetts State Board of Registra-

tion in 1898 offered an amendment which sufficiently covered the ground, but it was not adopted on account of strong protests coming from an unexpected quarter, therefore to-day there are those who believe that in Massachusetts there is no legal barrier to the Christian Scientist practicing as a healer. Such a condition of affairs as this can only be successfully met by display of the same energy and enthusiasm in combating it that has formerly been put forth by its promoters, and it behooves the ophthalmologist, as well as the general practitioner, to be on the alert, and actively aid in promoting the growth of a healthy sentiment in this direction. W. D. H.

Massage for Asthenopia.—Pagenstecher observes that the treatment of diminished functions of the eye, with normal or nearly normal vision, is difficult and complicated. Tenotomy and "darkness cures" are seldom needed. Careful examination, glasses and local treatment of the conjunctiva are important, but the remedies used must not be too powerful. Massage is most important of all. The points to be massaged are the bulbus, the lids and the nerves emerging from the orbit, particularly the supraorbitalis. A large number of cases have been cured with massage alone, due to neuralgia (reflex) or to circumscribed sensitiveness of the ciliary body, also asthenopia caused by defective tension in one eye or by resections of the ocular muscles. Slight paresis of the ocular muscles can also determine asthenopia. Reflex asthenopia may be caused by affections of the nose or frontal sinus. Treating the general health proves frequently of the greatest importance. Relapses may occur even after the most brilliant successes.—*Munch. Med. Woch.*, December 20, 1898.

TRANSLATION.

GLASS EYE-BALLS AS OCULAR PROTHESIS.

BY PROF. H. SNELLEN.*

Translated by Melville Black, M. D.

DENVER.

Illustrated.

"It has been attempted in former times to lessen and correct the evils resulting from the loss of an eye by means of protheses, which were classified into ecblepharos and hyperblepharos. The former were partial masks, i.e., plates on which the eye and the eyelids were painted or imitated and were worn in front of the socket.

By hypoblepharos was understood all those protheses which were introduced under the lids. The manufacture of artificial eyes was first instituted at the beginning of this century. Small metal concave shells were so prepared that they would cover the atrophied eye under the lids. The eye was imitated in enamel as nearly as possible. It was in Paris that most of the enamel arts were cultivated, and it was there that the best artificial eyes were prepared. †"At the present time (1818) it is an art and an industry entirely French to which foreigners must pay tribute." Those who were unable to go to Paris used to send a painted imitation of the normal eye with the exact description of the size and form of the orbit. But since the enamel was not lasting, and the artificial eye had to be renewed every year, an attempt was made to use cheaper material, at first porcelain, later glass. At first the eyes so prepared were heavier and thicker than those made from enameled metal. Soon, however, the supply became better and cheaper, so that the buyers had a larger stock to choose from. The ready-made artificial eyes were naturally much cheaper than those made to order. For the latter Paris for a long time remained the principal source of supply, and the firm Boissonneau was thereby made famous. Even now their products satisfy the most severe requirements.

*Read before The *Holland Ophthalmological Society in Rotterdam*, Dec. 11, 1898. Published in the *Klinische Monatsblatter fuer Augenheilkunde.*

†Hazart-Mirault. *Traite pratique de l'oeil artificiel*, Paris, 1818. Preface p., XI.

In other places the glass-blowing industry made an attempt to better both the likeness and form. Like the enamel eyes the glass eyes had the shell form, for originally they were only intended to be placed over an atrophied eyeball. The manufacture and sale of artificial eyes remained an industry by itself, and did not belong either to the surgical or ophthalmological fields. Operative procedures were preferably avoided and excluded as much as possible in order not to frighten away the purchaser. Hazart-Mirault says about the extirpation of the eyeball, "In whatever case it may be we never advise so cruel an operation for so slight an advantage."

The newer ophthalmology, however, teaches that there are a large number of indications which render the extirpation of the eyeball desirable and necessary; pain in a blind eye, calcifications in an atrophic eye, neoplasms, and danger of a sympathetic transference to the other eye, are just

Cross section of the eye shell.

Cross section of the double-walled artificial eye.

Cross section of an artificial eye-bulb.

so many indications. Also, the bad appearance of an enlarged and deformed blind eye is a cosmetic reason for operative interference not to be underestimated.

The number of extirpations has steadily increased; nevertheless, the same shell-shaped artificial eyes have always been used.

The simple extirpation out of Tenon's capsule, with amputation of the tendons and optic nerve close to the bulb, has not been so very long in use. It was performed in Dublin by J. M. Ferrall, and in France by Bonnet, in 1841. If the conjunctival sac is protected as much as possible, there is sufficient room for the artificial eye; there is one disadvantage, however, viz., that an empty space is formed in the cavity of the hemispherical prothesis, in which tears and mucus accumulate. Furthermore, the sharp edges wound the conjunctiva, and produce scar and granuloma formation. In addition, the motility is much less than when the shell is placed upon an atrophic eye. Therefore the question arose, in what way could the advantages of a stump be retained? This was first raised in Holland, at a previous meeting of this body, by Prof. M. E. Mulder, of Groningen.

In a dissertation by J. E. Dubanton it was shown, based upon experiments made upon the cadaver and animals, that simple extirpation out of Tenon's capsule may be replaced by evisceration of the eyeball, the sclera being preserved. Through A. Graefe, of Halle, this operation was introduced into his clinic. It has been performed by others with certain alterations. The principal modification gives the so-called Mules operation. Mules places a glass ball in the eviscerated sclera; in this way a stump is formed, which fills the dead space behind the artificial eye and contributes to mobility.

For those cases in which one is compelled to remove the entire eyeball the operation of Adams Frost is suitable, in which, after the simple extirpation the glass ball is placed in the cavity formed by Tenon's capsule. Lang makes use of this method in a large number of cases.

The advantages and disadvantages of these different operations have been a great incentive to discussion up to the present time. Just a short while ago a valuable report* was issued by a commission appointed by the Ophthalmological Society of the United Kingdom to investigate the value of simple extirpation in comparison with other proposed substitute operations. The following are the principal operations to be considered: evisceration according to Graefe, Mules' Operation (evisceration with insertion of a glass ball in the scleral cavity), and the operation according to Adams Frost (extirpation with insertion of a glass ball in Tenon's capsule). The same subject is on the program for the session of the Ophthalmological Department of *International Medical Congress* which will be held in Paris in 1900.

The preservation of the stump in the socket either by evisceration of the scleral cavity or by the insertion of a glass ball is of great advantage for the motility of the artificial eye; the principal advantage, however, is, and this is of special value, that by this means the dead space in which mucus and tears collect is closed by the heretofore employed shell-shaped artificial eye which lies on the stump.

It seems to me that in suitable cases this disadvantage may be avoided after simple extirpation in another way.

After extirpation cannot the shell-shaped eye be replaced with advantage by one with which no dead space will remain? With this object in view I have made some experiments by filling the ordinary shell-shaped eye with plaster, later with a gutta-percha preparation such as is used in dentistry ("Gilbert's temporary stopping"). The latter satisfies all

**Transactions of the Ophthalmological Society of the United Kingdom.* Vol. XVIII. London, 1898, page 233.

requirements. It becomes soft in warm water, assumes then any desired form, and its surface remains soft and smooth. This experiment gave immediately the desired success. Although the filled eye was much heavier, it was nevertheless preferred by the patient to the shell-shaped artificial eye, because the sharp edges were now covered, and no more conjunctival secretion collected.

In August, 1898, after the Heidelberg Congress, I visited Müller Bros. in Wiesbaden to consult with them in this matter. They were immediately ready to imitate such filled artificial eyes by using all glass, making hollow glass shapes. Through the universally recognized great skill of these gentlemen the attempt immediately succeeded, and a large number of patients now wear these bulb-shaped protheses, the advantages of which they loudly praise. They cause much less irritation and are easily inserted and removed, and they may also be worn during the night without disadvantage. Later there appeared this advantage, viz., that the conjunctival sac and eyelids easily adapt themselves to the rounded margins of these artificial eyeballs so that even imperfectly fitting eyes much better satisfy the requirements after they have been used a short time.

These protheses are made out of thin, light, but strong glass weighing on the average three grms., and are not much more expensive than the former shell-shaped eyes.

Müller Bros. prepare these in accordance with individual cases either as double-walled eye-shells or as artificial eye-bulbs with convex or concave posterior walls.

Undoubtedly the good results of these attempts must contribute to make the simpler, and especially as regards after-treatment, the more convenient simple extirpation preferable to evisceration in those cases in which removal of the eye appears necessary.

REVIEWS.

Tatouage de la Cornée et Ophtalmie Sympathique. Trousseau, *Annals d'Oculistique*, March, 1899. In order to emphasize possible danger as a result of tattooing leucomata for cosmetic effects, the author relates a recent experience of his own in which he saw in consultation a patient twenty-four years old who had a leucoma of the cornea with synechia resulting from purulent ophthalmia in infancy. As the eye retained a vision of one-tenth, had never shown symptoms of irritation, and was complicated with the synechia, the operation was not advised. Notwithstanding, the operation was undertaken and was immediately followed by a severe iridocyclitis which lasted about two months, after which the eye became more quiet, there remaining only a moderate pericorneal injection. At the end of another two months the patient was led to the clinic perfectly blind, the operative eye having commenced to shrink, while the other was passing through a very violent iridocyclitis, with posterior synechiæ and no fundus reflex, of undoubted sympathetic origin. The patient remained blind after enucleation and a course of mercury. Mention is also made of another patient who became practically blind after tattooing a leucoma uncomplicated in any degree. A glance at the literature shows that Rava in 1872, Reuss in 1873, and Panas in 1878, have already called attention to the dangers in this procedure. Rava, as quoted by Panas, claims that tattooing is always followed by pain, injection and lacrymation requiring an interval of quiet before the next seance. Panas mentions a young man in whom there was violent reaction after two seances, the latter of which provoked a violent sympathetic iridocyclitis, and also a young girl who went through a violent purulent iridocyclitis and an enucleation before the appearance of sympathetic inflammation. Lucas-Championniere and Giraud-Teulon narrate similar experiences. The recent notions regarding the genesis of sympathetic ophthalmia as being due to the migration of micro-organisms in a way explains the injurious role played by tattooing, which in most cases is a septic inoculation associated with the introduction of foreign bodies into the tissues of the cornea. The author thinks that the benefits to be de-

rived from this procedure have been greatly exaggerated and would make use of it only where a decided improvement in vision or where increased facility in obtaining occupation might be expected, and warns against the too ready acceptance of the belief that the operation is without danger.

W. D. HALL.

L'EXTIRPATION DU SAC LACHRYMAL. Aronis (Smyrna) *Annal. d'Oculistique*, March, 1899.—M. Aronis believes the operation for extirpation of the lachrymal sac to be one of great practical value when a diseased condition obtains, as preliminary to the removal of cataract, or as a therapeutic resource in the treatment of destructive ulceration of the cornea. According to Kuhnt, in 466 corneal processes of this sort fifty-eight per cent of them were associated with disease of the sac. The participation of the sac in granular conjunctivitis is another argument in favor of the removal. The difficulty of a complete removal has brought the operation into disfavor, for if a very small portion of the mucous membrane remains behind a secreting cavity results. There are two methods in general use, common to both being the incision from the caruncle to the crest; some open the sac and detach it after exposing the mucous membrane, while others seize the sac and remove it without exposing the interior. Terson in the majority of cases uses the thermocautery, reserving extirpation for dilated sacs; his incision begins one-half centimeter above the internal palpebral ligament, which is divided. M. de Wecker considers the operation of extirpation very difficult of execution, it being carried out in the bottom of a wound which is constantly full of blood. Kuhnt in 1887 described a method by which the sac can be easily extirpated: First step, "The assistant exercises tension upon the skin drawing it toward the root of the nose. The operator standing at the head of the operating table presses with his left thumb nail exactly upon the anterior lachrymal crest and incises along the nail down to the periosteum. In length the incision should be 2.5 cm., should commence 4 mil. above the internal ligament and finish 5 mil. beyond the commencement of the nasolachrymal canal. Scissors may be needed to divide the ligament. The hemorrhage is trivial. Then seizing the temporal flap, the operator carefully excises the fibrous capsule along the crest, taking care not to injure the mucus membrane or to open the sac." Second step, "The operator by means of blunt scissors separates the internal surface of the sac from the periosteum, then seizes this with its fibrous envelope, and detaches it from the bone, cutting with the scissors a little up and out. In order to separate the internal and anterior surface, let the assistant

draw the temporal flap strongly outward while the operator draws the upper extremity of the sac inward, when it can be easily set free by a few cuts with the scissors. Then separate the sac from the nasolachrymal canal and curette the canal itself. Then suture with drain. The author has witnessed and assisted in the extirpation of the sac in many of the nine hundred times that the operation has been performed by Professor Kuhnt and his pupils, and expresses himself as a believer in its value. That which makes the method successful is the line of the primary incision which lays bare the sac with a mathematical accuracy without opening its cavity. It is also of the greatest importance to seize its summit together with its fibrous envelope, for to do otherwise is to expose it to injury by which the extirpation becomes difficult. The healing process is usually by first intention, but if tardy a slight curetting may be in order. The operation is of course not indicated in acute abscess and in acute periostitis. Kuhnt recommends the operation to relieve the following conditions: 1. Sacs in a catarrhal or purulent condition complicated with a fistula; in sub-acute cases the probe may be tried first. 2. Chronic disease dependent upon a dilated sac. 3. He advises extirpation in all cases of chronic dacryocystitis of long duration which have not improved by using sounds and irrigation. 4. In recent cases of dacryocystitis complicated with ulcus serpens, or where one intends to operate for cataract or glaucoma, or after an injury to globe. 5. In caries of the lachrymal bone or the frontal process. 6. It is also advised in those cases of granular ophthalmia in which the sac contracts and secretes a minimum amount of thick secretion. W. D. HALL.

OPTIC NEURITIS IN THE LOCALIZATION OF INTRA-CRANIAL TUMORS. —By Marcus Gunn, M.B., F.R.C.S., *Brain*, Part III, 1898, page 332. In the course of an interesting discussion on "The Accurate Localization of Intra-Cranial Tumors, excluding Tumors of the Motor Cortex, Motor Tract, Pons and Medulla," Mr. Gunn says that the outstanding facts of his investigations, and of all clinical experience are, first, the great frequency of optic neuritis as a symptom in connection with brain tumor; secondly, the particular proneness of the optic nerve to be affected in tumor of the cerebellum, and, after it, in tumor of the basal ganglia, and of the occipital, frontal, and temporo-sphenoidal lobes of the cerebrum, these being mentioned here in the order of greater frequency.

Such facts are, however, evidently of practically no localizing importance in any particular case. Indeed, common as optic neuritis is in intra-

cranial tumor, we know that a large new growth may exist, and be found after death, without any optic neuritis having been present; while, on the other hand, optic neuritis has been diagnosed during life, without any cause for its occurrence being recognized by highly competent observers at the autopsy.

It is not so much the locality of an intra-cranial tumor, as its behavior, that influences such symptoms as headache and optic neuritis. Rapid growth or liability to sudden congestion; association with an increase of cerebro-spinal fluid; or a complication with basal meningitis, are the facts that seem to particularly predispose to the occurrence, and afterwards to the severity, of inflammation of the optic nerve. It is doubtless in consequence of this relation between behavior and intensity, and not from anything particular in the mere position of the new growth, that tumors affecting the cerebellum peculiarly predispose to involve the optic nerve.

Such being the case, is there anything in the character and behavior of the optic neuritis itself, apart from its mere occurrence, that is of any localizing value? Mr. Gunn says that he has the support of some of his medical colleagues in believing that cerebellar tumor very often excites a peculiarly intense optic neuritis, with great engorgment of the papillæ, and marked œdema of the surrounding retina, with, not uncommonly, a macular stellate figure similar to what is seen in so-called albuminuric retinitis. He offers elsewhere an explanation of this retinal condition, reconciling the liability to its occurrence from very different causes, and says that all he needs to say here is that, as regards all forms of intra-cranial disorder, this retinal appearance, with intense papillitis, is, in his experience, most apt to occur in cerebellar tumor and in basal meningitis; perhaps in cerebellar tumor because it may so readily cause a basal memingitis. He has met with this form, however, in at least two cases of frontal tumor, in neither of which, he believes, was there any evidence of the basal meninges being involved.

It is known that, in some cases of optic neuritis, there is a markedly rapid increase in the amount of swelling of the papillæ, presumably due to a concurrent increase of intra-cranial pressure, for the converse at least is true, that a surgical relief of intra-cranial pressure is followed by, and doubtless causes, a similarly rapid diminution of disk prominence. If it can be shown that tumors in certain localities are particularly liable to raise intra-cranial tension, then this ophthalmoscopic sign would have some localizing value, but not otherwise.

And now a few words as to the possible relationship between uniocu-

lar optic neuritis and one-sided brain tumor. The explanation of optic neuritis accompaning intra-cranial tumor is confessedly still obscure, and it is difficult to realize why, on any of the theories advanced, one optic nerve should be attacked and the other long remain normal. But unilateral excess of neuritis may admit of explanation.

First.—If optic neuritis be of the nature of a gradually extending inflammation, communicated along the pial sheath of the nerve from the basal meninges, a greater proximity of the exciting tumor to one optic foramen would cause the optic nerve passing through it to be first involved. If this reasoning be correct, in the case of a one-sided growth affecting the base far forwards in the frontal and anterior part of the temporo-sphenoidal lobes, the optic neuritis would be first recognized, and would for some time be in excess on the same side as the tumor. In the case of a tumor located further back, the affection of the pia mater would presumably extend forward equally along both nerves after it had reached the chiasma; and in such a case, accordingly, the optic neuritis might be expected to appear practically simultaneously, and be equal in intensity, on the two sides, and that, in any case, it would have no lateral localizing significance. So much for theory. Statistics lend considerable support to this reasoning. Taking the important analysis of 601 cases of tumor, made by Dr. J. M. Martin last year, and paying attention to the relation between position, occurrence of optic neuritis, and difference of neuritis on the two sides, Mr. Gunn found that there was unilateral neuritis (or excess) in ten cases of frontal tumor, and in eight of these it occurred on the *same* side as the tumor. In four cases of neuritis-difference, in cases of temporo-sphenoidal growths, the one-sided excess was always on the *same* side. Putting these together, there is the unilateral excess of neuritis on the same side as the tumor in twelve cases out of fourteen.

In regard to the cases of tumor in the parieto-occipital lobes and on the cerebellum, the unilateral character of the neuritis was noted in ten such cases altogether; in *five* of these it was on the *same* side as the tumor, and in *five* on the opposite side. Statistics are dangerous, Mr. Gunn admits, but these facts are certainly striking.

Another interesting statistical result bearing upon this argument is, that a one-sided difference of neuritis proves to be much more common in tumors of the cerebral lobes than in tumors of the cerebellum; it occurred in 20 per cent of all the instances of neuritis with tumor of cerebrum; in only about 3 per cent of those associated with tumor of

cerebellum. This is, of course, in favor of its being communicated by contiguity.

Second.—On the theory of a *descending cerebritis*, it is impossible to understand how the inflammation can fail to be transmitted along both optic nerves on passing the chiasma, even though it had previously been confined to one optic tract. The same remark applies to the supposed influence of the external geniculate body.

Third.—If increased intra-cranial pressure be taken as the determining cause, it is manifest that the actual tension must be the same in all parts of the cranial cavity, and that, if the two optic nerves are symmetrically situated, they must be equally exposed to the effects of the pressure. But it is possible that anatomical differences, developmental or pathological, may be responsible under pressure-causation for some of the very rare cases where one optic nerve only is inflamed, and of the much more common instances of one nerve being involved in advance or in excess of the other. Minor degrees of want of symmetry of the cranial bones on the two sides are not uncommon. And should the disposition and size of the optic canals be in this way different, it is conceivable that this may determine the escape of one nerve, or a modification of its proclivity to the effects of pressure. But of this form of a symmetry nothing exact is known. In an autopsy on a case of one-eyed neuritis in intra-cranial tumor, it would be well to investigate the possibility of some such anatomical explanation.

Of want of symmetry further forward, however, much more is known. Mr. Gunn thinks it is a fairly general belief, as was pointed out by Gowers, that optic neuritis is, on the whole, more common in hypermetropic eyes. If, with due regard to the frequency of hypermetropia, this is really true, as it seems to be, then it would be interesting to find how far this may be responsible for unequal optic neuritis. In measuring the swelling of the papilla we always estimate the refraction of the eye away from the optic disc, at or near the macula by preference, and it is customary from these data to compare the height of the disc above the general fundus-level in the two eyes. But it would be important, also, always to compare the refraction of the two eyes. How far such a factor is influential, Mr. Gunn is unable at present to say; it is unlikely that it should be important except where the difference in refraction is very decided. Of course, its influence, if actual, would minimize the localizing value of unsymmetrical optic neuritis, restricting its applicability to cases where the refraction of the two eyes is the same, or nearly so.

On the whole, then, while the value of the ophthalmoscope in the

diagnosis of intra-cranial tumor is fully recognized, it is necessary to be on guard not to expect too much from such information, either as to the size of the tumor or its localization, or disappointment will be the result. Carefully recorded observations, however, may yet teach us much that we wish to know. At present Mr. Gunn does not think that we are justified, in respect to this method of localizing intra-cranial growths, in saying more than—

(1) That intense double optic neuritis, with much swelling and surrounding retinal change, coming on quickly, suggest the *cerebellum;*

(2) That one-sided optic neuritis, or marked difference, suggests the *cerebrum*, and is, on the whole, in favor of the tumor being on the same side as the excess of neuritis, where there are other reasons for localizing one in the front of the cerebrum. ALVIN A. HUBBELL.

IT HAS been reported through the press that Queen Victoria had cataracts, and that she had consulted Professor Pagenstecker, of Wiesbaden, who advised an operation, and assured Her Majesty of a good result. The *British Medical Journal* of May 31, however, says that it has the best authority for stating the alarmist reports in regard to Queen Victoria's sight are erroneous, and that the rumors of a contemplated operation upon Her Majesty's eyes are mere invention. We trust the latter report is true, as the Queen is beloved not only in her own country, but in this, and we hope that at her age she will not be compelled to pass through such an ordeal.

WE ARE happy to be able to state that Dr. Edward Jackson, formerly of Philadelphia and now of Denver, will be added to the editorial staff of the OPHTHALMIC RECORD. Dr. Jackson needs no introduction to the readers of the RECORD. Hardly an ophthalmologist in America is better or more favorably known to the profession. His work and writings upon the subject of refraction and skiascopy have given him an authoritative position on these subjects. Dr. Jackson will have particular charge of these subjects in his work on the RECORD, but, of course, it will in no wise be limited to those departments, as his reputation on all subjects pertaining to ophthalmology are of the very highest possible quality. We give Dr. Jackson a hearty welcome to the staff, and while we congratulate him upon being connected with the RECORD, we desire also to heartily congratulate the RECORD and all its readers.

REPORTS OF SOCIETIES.

AMERICAN MEDICAL ASSOCIATION.

Abstract of papers read before the Section on Ophthalmology, Columbus, June 6–9, 1899. Reported by H. O. Reik, M.D.

The meeting was called to order by the president of the section, Dr. Casey Wood, of Chicago, who delivered the address of the chairman, entitled "*How May the Ophthalmic Section Do the Most Effective Work?*"

Dr. Wood referred to the very large number of papers which are now annually presented to this section, and showed that the superabundance of material, while all good, prevented the deliberate consideration of any portion of it. He suggested that the program hereafter be limited to forty papers, fifteen of which might be contributed on the invitation of the chairman and the remaining twenty-five be volunteer contributions, selected by the executive and executive committee from the titles and abstracts sent in before a certain date. This will allow for more time in the reading of each paper, and a reasonable time for their discussion. He also suggested that we might have reports of each meeting from specially appointed committees on the efficacy of such new agents, or instruments, as might appear to be worthy of investigation.

His paper was referred to the executive committee with instructions to report at a later meeting.

The Treatment of Trachoma by Cupric Electrolysis.—Dr. Geo. F. Keiper, of La Fayette, Indiana. The author refers to a number of experiments performed to prove that substances can be made to penetrate the tissues by means of the electric current, and proposes applying this to the treatment of trachoma. The method suggested is based upon the following experiment: Take a carbon electrode, attached to the negative pole of the battery, and a pure copper needle, attached to the positive pole, and introducing the needle into a piece of meat, turn on the current. On cutting the meat open, the region around the needle will be found of a green color, and chemical examination shows this to be due to the oxy-chloride of copper which has been formed. As this substance has a decided germ-

icidal action, it is relied upon to destroy the trachoma granules when the copper pole is applied to the conjunctiva.

Discussion.—Dr. J. G. Huizinga, of Chicago, considered that if we believe trachoma to be the result of a specific infection, then this treatment deserves more than a passing notice. He believed that such a current would penetrate the conjunctiva and destroy or neutralize the cause of trachoma, but it would not reach the disease if it were very deeply imbedded. He said that the distance between the anode and cathode should never be less than five inches, because the amount of chlorine ions between the two poles must be sufficient to meet any demands that may be made upon them.

Dr. Lucien Howe, of Buffalo, thought that the treatment would probably be painful, and he doubted the ability to introduce medicines into the tissue in this way, since his attempts to produce the characteristic starch-iodine reaction had always failed.

On Seeing the Capillary Circulation in One's Own Retina.—Dr. C. E. Norton, of Lewiston, Me. Dr. Norton states that by looking at a clear sky through a piece of dark blue glass one is able to see small bright objects moving in all directions with a peculiar jerky motion, and these particles he believes to be the blood corpuscles in the capillaries of the retina. That they are not muscæ volitantes is shown by the following characteristics: They are of definite size and shape, they cannot be made to move back and forth along any given path by movements of the globe, but move only in definite lines, and gravity has no effect upon them. They move in a jerky manner, and this motion is synchronous with the heart beat and can be increased by anything that increases the pulse rate. This phenomena is more easily seen through blue than through other colored glasses, and it has a practical bearing in that, when seen by persons who are not looking for them and without the aid of glasses, they probably indicate ocular overwork.

Discussion.—Dr. Geo. M. Gould, of Philadelphia, stated that he had not tried this experiment, but that from a theoretical consideration of the subject he doubted the ability of the eye to see such small subjects as the red corpuscle.

Dr. A. B. Hale, of Chicago, called attention to an article in the *Monatsblatter* of April, 1897, in which the author offers detailed evidence in support of Dr. Norton's studies and even thinks he can detect the white from the red corpuscles.

Dr. Edward Jackson, of Denver, said that he was able to see these corpuscles always against a blue sky, even without the aid of the glass and

he believed it was possible because the corpuscles were in such close relation to the retinal percipient elements that the image became as large as the object.

Nutrition of the Crystalline Lens and its Relation to Cataract Formation.—Dr. Lewis Stricker, of Cincinnati. Dr. Stricker attributed the nutritive control of the lens to the epithelial cells of the anterior chamber and considered them not only as the greatest factor in the production of the lens but in its protection against the inroads of disease. If their protective power be once annulled the train of changes takes place in a perfectly passive manner, subject entirely to the intensity of action of the chemically altered nutritive fluid. What this chemical change consists in must eventually be solved by the student of physiological chemistry.

Discussion.—Dr. J. L. Thompson, of Indianapolis, referred to a peculiar opacity in the lower inner margin of the lens rarely ever seen in persons under fifty and which rarely ever causes complete cataract. He asked if gravity had anything to do with this.

Dr. Harold Gifford, of Omaha, and Dr. J. B. Worrell, of Terre Haute, Ind., both stated that they had watched such cases as Dr. Thompson referred to for a number of years without noting any change.

Quinine Blindness in a Young Child.—Dr. H. Moulton, of Fort Smith, Ark. (To appear in full in the August RECORD.) This case was as follows: F. V., aged three years, was first seen by the author on August 24, 1898, totally blind. On August the 4th and 5th he had been given each day twenty grains of the bisulphate of quinine for malaria. His physician, thinking that the fever was tending toward the pernicious type, now gave doses of twenty grains each day on the 6th, 7th and 8th of August. On the ninth day ten grains were given again, and on the 10th it was discovered that the boy was blind. Ninety grains in all had been given during the five days previous to the discovery of blindness, which was absolute. The pupils were dilated, the optic disks perfectly white, and the blood vessels almost obliterated, appearing as mere threads. Treatment was promptly instituted, and when last heard from, on December 12th, the vision had been to some extent recovered, so that the child could find pencils, etc., dropped on the floor.

Discussion.—Dr. Geo. E. de Schweinitz, of Philadelphia, said that he had analyzed more than one hundred cases of quinine blindness, and this was, with one exception, the youngest on record. He stated that usually blindness from quinine is primarily complete, but that recovery takes place, although contraction of the field and deficiency of the color sense generally remain. In regard to therapeutics, he considered time the best agent.

Dr. Thompson inquired if it were not possible that some of these cases were due to effusions of serum into the ventricles of the brain rather than to the action of quinine?

Dr. G. C. Savage, of Nashville, Tenn., reported a case of a young man who had been the subject of quinine blindness in childhood and who had grown to manhood before he discovered that his visual field was more limited than that of other people.

The Examination of the Visual and Color Sense of Railway Employees.—Dr. C. H. Williams, of Boston. Dr. Williams explained the method in use by the New York, New Haven and Hartford railroad, where he selected such employees as train dispatchers, and devoted considerable time to instructing them how to make color tests. He exhibited a number of cards of test letters, so arranged as to prevent the possibility of memorizing, and some cards showing illustrations of the semaphore of the size to subtend an angle of five minutes at twenty feet, and corresponding to the ordinary semaphore signal as seen at a distance of half a mile. He also exhibited a new lantern for use in testing the color sense.

Discussion.—After some discussion of this paper, the committee appointed to report upon the best visual and color tests for railroad employees, recommended that consideration of the subject be postponed until after the meeting of the International Committee, which is considering the same question, reports in 1900.

Report of Seven Cases of Retinal Sequelæ of Diseases Affecting United States Troops in Cuba and Porto Rico.—Dr. W. K. Rogers, Columbus. This paper will appear in full in the August Ophthalmic Record.

Discussion.—Dr. Weeks stated that the changes we find in the retina and optic nerve after such diseases are consequent, in all probability, on the changes that take place in the blood, interfering with the nutrition of the vessel walls, and permitting exudation, etc.

The meeting was called to order by the President, who announced that the morning session would be a joint one with the section on otology and laryngology.

Some Points in the Symptomatology, Pathology, and Treatment of the Sinuses Adiacent and Accessory to the Orbit.—Dr. Charles Steadman Bull, of New York. Dr. Bull stated that the frontal sinus, the ethmoidal cells, the sphenoidal sinus and the maxillary antrum, are often the seat of disease which subsequently extends to the orbit, and that tumors of the bones of the skull, or the sinuses contained within these bones, may extend in every direction from one sinus or labyrinth to another, and often exist for a long time and reach a large size before appearing in the

orbit. He then considered in detail the diseases of each of these regions, with a full consideration of the best means for treating them.

Diseases of the Accessory Sinuses in Their Relation to Diseases of the Eye.—Dr. J. H. Bryan, of Washington. Dr. Bryan stated that, as in diseases of the nose, the affections of the frontal sinuses are frequently accompanied by ocular reflex disturbances, but they are frequently overlooked because of the difficulty in making a diagnosis of the diseased condition of the sinus. The reflex symptom most frequently observed in these cases is neuralgia of the supraorbital nerve. Abscess of the orbit is rarely primary. In the majority of instances it is the result of extension of inflammation from one of the sinuses, generally the front one.

Affections of the ethmoidal cells are generally caused by diseases of the nose, and the eye may escape injurious effect so long as there is free discharge into the nose. To what extent sphenoidal diseases exist there is no means of knowing, since the diagnosis is extremely difficult. A number of cases are reported in this paper, illustrating the diseases of these cavities.

Eye Troubles Attributable to Naso-pharyngeal and Aural Disturbances.—Dr. Jos. A. White, of Richmond, Va. Dr. White remarks that from a study of the relations between naso-pharyngeal and eye troubles, it will be observed that disease is transmitted from the naso-pharynx to the eye in more than one way—it may be direct microbian contamination along the lachrymal passages; it may be by mechanical obstruction of the nasal duct at its lower end or in its canal; it may be by the propagation through the blood vessels and lymphatics; it may be by toxine poisoning or by reflex nervous influences.

When we analyze the recorded cases of ocular phenomena in aural troubles we find that there is occasionally some uncertainty about the connection of the two. Still, whilst much is yet to be explained in regard to pathological influence of the ear on the eye, we may conclude from what we have before us that the influence really exists, and is exerted by both direct and indirect propagation by way of the nerve tract and blood current.

Analysis of Cases of So-called Chronic Glaucoma, with Special Reference to the Visual Field—Dr. Geo. E. de Schweinitz, of Philadelphia.—Based upon a study of sixty-three eyes suffering from chronic glaucoma and an examination of 184 charts of the visual field, Dr. de Schweinitz discussed the subject under the following headings: 1. The commonly described visual field phenomena, or the so-called typical form of contraction. 2. The horizontal hemianopic visual field. 3. The various atypical contrac-

tions of the visual field, to which the following names were given: the acorn field, the dumbbell field, the angle field, and the kite-shaped field. 4. The various forms of scotoma. 5. Sentient islands within the darkened areas; and sixth, the color fields.

It was pointed out that although it was commonly stated that the nasal field was earliest and more severely affected, this was by no means the rule. The average of all his observations yielded a visual field with the following dimensions: Outward 56, upward 26, inward 25, and downward 37 degrees. In other words, a field which was concentrically restricted and not specially restricted on the nasal side.

Although it is commonly stated that in glaucoma the color fields present a restriction corresponding with that of the form fields, Dr. de Schweinitz's observations led him to believe that this could not be regarded as a differential test from simple atrophy, inasmuch as frequently the color field is correspondingly much more contracted than the form field.

His observations led him to believe that in all cases careful study of the field would usually demonstrate a scotoma in some portion of it, and he felt that a study of these scotomas would be more profitable as a method of differentiating this disease from optic atrophy than the color field, as they might also have some relation to the prognosis of operative interference.

Discussion.—Dr. Thompson referred to the unsatisfactory results so often accompanying operative interference in simple glaucoma, and said that we could count no one happy who labors under this disease, until he is dead.

Dr. Leartus Connor, of Detroit, spoke of the importance of carefully correcting even the small errors of refraction in these cases, and of giving attention to the conditions of defective assimilation which so often exist at the same time.

Dr. Eugene Smith, of Detroit, referred to the difficulties of an early diagnosis in this disease, and stated that the tension of the eye frequently varies if taken at different periods of the day; for instance, in the morning there may be no tension, and in the afternoon a tension of plus 1. In operating he preferred sclerotomy to iridectomy.

Dr. Flavel B. Tiffany, Kansas City, stated that he believed the glaucomatous condition was becoming much more rare since we have been giving such careful attention to refraction.

Serous Cyst of the Iris following a Discission for Milky Cataract.—Dr. S. C. Ayres, of Cincinnati. The patient, G. R., aged six years, had lamellar cataract in each eye with nystagmus and a very high degree of

strabismus convergence. An iridectomy was performed on each eye and the left internus tenotomized. The patient was not seen again for fifteen years, when he had a milky cataract in each eye and discission was successfully performed. Two years later a secondary membrane had formed in the left eye and a cyst sprang from the lower and inner angle of the iris, measuring 5mm. transversely and extending into the anterior chamber so far as to obstruct the lower half of the pupil. An incision was made in the corneo-scleral margin and the cyst removed with a piece of the iris. The vision was good for some time, but there is now a slow progressive degeneration going on.

Discussion.—Dr. C. F. Clark, of Columbus, O., referred to two cases he had seen, one of congenital cyst and the other probably traumatic. In the latter case he had operated by simple puncture and there had been no return.

Dr. Dudley Reynolds, of Louisville, Ky., reported three cases, one of which had been operated upon by puncture, which was followed by panophthalmitis.

Experiences with Operations for Secondary Capsular Membrane.—Dr. J. M. Ray, Louisville, Ky. (This paper will appear in full in the August Ophthalmic Record.)

Discussion.—Dr. Thompson looked upon the secondary operation as a much more dangerous one than the first operation for cataract.

Dr. John E. Weeks, New York, stated that in his private cases he performed the operation in at least 95 per cent and in the hospital in at least 60 per cent of all his cataract cases. He had three cases out of 300 where the vision had not been as good after as before the secondary operation, but had never lost an eye. He thought that infection could be prevented by having sterile instruments, an aseptic cornea and by sealing the wound afterward by means of the actual cautery.

Dr. Wm. H. Wilder, of Chicago, endorsed the position taken by Dr. Weeks, and added that he always operated in a dark room with an assistant to focus the light from a strong Argand burner directly on the cornea.

Dr. Sam'l Mitchell, of Hornellsville, N. Y., also operates in nearly all cases, and Dr. Hawley stated that he always operated in a dark room, frequently performing his operations at night.

Dr. C. H. Williams, of Boston, said that he always uses the Weeks curved needle knife, and he had found the use of the small electric light of considerable service.

Dr. Leartus Connor, of Detroit, also operates early because the cap-

sule is more readily cut than at a later period, and there is consequently less tension upon the ciliary body.

Report of a Case in which Both Eyes were Lost from Intraocular Hemorrhage after Cataract Extraction.—Dr. A. R. Baker, Cleveland.—Mrs. Y., aged 63 years, general health good, mature senile cataract in both eyes, and in every way an apparently favorable case for extraction. The first operation was a simple extraction, and everything went well until the sixth day, when she complained of pain and inspection showed that intraocular hemorrhage had occurred, irido-cyclitis followed and it became necessary to enucleate in order to relieve the pain. One year later the second eye was operated upon, a preliminary iridectomy being performed five weeks before the extraction. Every conceivable precaution was taken to avoid any risk of hemorrhage and the operation seemed to be perfect. Within an hour, however, the patient screamed with pain, and on removing the bandage it was found that the entire contents of the globe had been thrown out, and the globe looked as if it had been grasped tightly in the hand and squeezed; even the retina was extruded. There was no appearance of blood.

Dr. Baker suggests that in cases where one eye has been lost by intraocular hemorrhage, the other be operated upon after the old method of reclination.

Discussion.—Dr. Thompson stated that twice in his life he had had similar experiences, and other cases were reported by Drs. S. D. Risley and Dudley Reynolds.

At the close of the meeting Dr. Wilder exhibited a new instrument for use in ectropion operations.

Dr. W. M. Sweet, of Philadelphia, exhibited an apparatus for the detection of foreign bodies in the eye by means of the X rays, and also a special forceps for the removal of such foreign bodies as bits of copper.

Dr. Cassius D. Wescott, of Chicago, exhibited a pair of spring scissors, which may be worked by either hand, for use in iridectomies, tenotomies, &c.

Dr. C. R. Holmes of Cincinnati, gave a demonstration of moist specimens to show the relations of the accessory sinuses to the orbit.

The Significance of Certain Rare Forms of Ametropia.—Dr. S. D. Risley, Philadelphia. (This paper will appear in full in the August Ophthalmic Record.)

Astigmatism After Cataract Extraction.—Dr. C. F. Clark, Columbus. Dr. Clark had analyzed his own cases of cataract extraction and compared them with the cases reported by Lippincott and by Pfingst. He exhibited a number of charts and diagrams, showing the variety and degrees of

astigmatism that occur after these operations and compared the results of the simple with the combined extraction.

Management of Cases of High Anisometropia.—Dr. Edward Jackson, of Denver. Of 1,000 consecutive cases of ametropia requiring correction, Dr. Jackson found 107 cases of anisometropia, forty-six of which were of high degrees. From the analysis of these cases he concludes that every case must be the subject of careful individual study and the selection of the lens for the worst eye at first tentative. In a few cases capable of nearly equally acute vision in both eyes, the more hypermetropic, or less myopic eye, should have its correcting lens for distant vision and the other eye the lens which will adapt it for vision at about ⅓ of a meter. In some cases we must be content with the full correction of the better eye and the adjustment to the other of a lens that will enable it to give the most aid in binocular vision. In cases of very high myopia in one eye with the other eye but slightly myopic or hypermetropic, the removal of the crystalline lens from the myopic eye would be proper, and if ever corneal incision comes into practical use to modify high astigmatism it will be proper to apply it first to cases of high anisometropia.

Surgical Treatment of High Myopia.—Drs. H. V. Würdemann and W. R. Murray, of Milwaukee. The authors describe two cases of high myopia which were operated upon, the result in both cases being satisfactory.

Considering the subject of the surgical treatment of myopia they recommend that it should be limited to cases over 12.D who suffer great inconvenience from their correcting lenses. The ideal cases for operating are those of 17 to 18.D. Second, the operation is mainly indicated with young adults. Third, cases having active disease and changes in the ocular structures, such as progressive myopia, chorioiditis, fluidity of the vitreous or detachment of the retina, are not applicable. Fourth, the dangers of operative interference are more than counterbalanced by the results to be achieved, which are mainly increase of visual acuity and of the visual field, and more extended use of the eyes which accompanies diminishment of the refraction.

The literature of high myopia is extensively reviewed and a table of statistics shows the proportion of myopic cases over 10.D to be only 0.54 out of a total number of 5,000 eyes examined under mydriatic.

Discussion.—There was an almost unanimous opinion that high degrees of anisometropia should be corrected, though it was suggested by Drs. G. C. Savage (Nashville) and Lippincott (Pittsburg) that full correction should not be given at once but made gradually in order to save the patient the discomfort attending a sudden change in his retinal images.

Dr. S. D. Risley (Philadelphia) strongly advised against the operative

treatment of myopia, and Dr. Timbermann cited the experience of Von Hippel, who had operated upon 114 cases, with good results in nearly all, and stated that of 100 highly myopic eyes let alone there will be just as many go to the bad as would occur in 100 cases operated upon.

The National Recognition of Eyestrain Reflexes.—Drs. Geo. M. Gould and Helen Murphy. The authors reviewed the text books of the various nations, and showed that there are but few slighting references to the effect of ocular conditions on the general system, and they made a strong plea for the recognition of reflex disturbances due to eyestrain.

The Papillitis Accompanying Brain Tumor.—Dr. Jno. E. Weeks, New York. Dr. Weeks reviewed at considerable length the literature upon this subject, and gave tables to show the relative frequency of papillitis in tumors of various proportions of the brain. He considers papillitis of little value as a means of localizing the tumor, and the size of the tumor appears to have no bearing on the development of the neuritis.

Discussion.—The discussion seemed to show that there may be many cases of brain tumor without papillitis, and some cases in which papillitis may appear for a brief period and then disappear, so that, unless examined at a favorable time, it would be overlooked. Cases of papillitis accompanying brain tumor were reported by Drs. Gifford, Williams, Huizinga, and Clark.

Dr. Alvin A. Hubbell (Buffalo) stated that he believed most of these cases of choked disk to be inflammatory in character, but Drs. Weeks and Gifford had both examined cases in which the evidence seemed to point to simple mechanical œdema.

The Value of Cycloplegia in Optometric Examinations.—Dr. C. M. Culver, Albany. A study is made of 1,000 cases seen in private practice, where cycloplegia was purposely produced for the sake of optometric examination. If more hypermetropia or less myopia was found by the cycloplegic examination it was considered a "gain," and if less hypermetropia, or more myopia, was found, it was called a "loss." Considering all ages, from five to fifty-five years, a gain was noted in 80 per cent, a loss in 4 per cent, and 16 per cent showed neither gain nor loss. The average gain in the 1,000 cases was 0.625 D, while the average gain in persons between 40 and 55 was nearly 0.50 D. It seemed that a 2½ per cent solution of homatropine hydrobromate provided a trustworthy cycloplegia as effective as atropine.

Discussion.—Dr. Edward Jackson considered homatropia a reliable mydriatic, and thought one of the greatest gains in the use of cycloplegics was in measuring the astigmatism and in showing the exact amount of anisometropia, rather than in bringing out latent hypermetropia.

Dr. H. Moulton (Fort Smith, Ark.) called attention to the value of scopalamine, and Dr. Randall (Philadelphia) stated that he had been impressed by the superior value of hyoscyamine.

Concerning the Bacteriology of Acute Catarrhal Conjunctivitis.—Dr. C. A. Veasey, Philadelphia. As a result of Dr. Veasey's examination it was found that in the vicinity of Philadelphia the most frequent cause of catarrhal conjunctivitis is the pneumococcus of Fränkel, that occasionally it is produced by the Koch-Weeks bacillus, and that the clinical manifestations of each are so similar in severe cases that it is impossible to distinguish between them without a bacteriological examination.

Discussion.—Dr. Wm. H. Wilder thought that it was quite possible that this organism of Fränkel is frequently present in the conjunctival sac when we do not suspect it, just as it is present in the mouth so commonly without causing any trouble.

Dr. John E. Weeks believed that this was so, but was surprised that the small bacillus had not been found more frequently in Dr. Veasey's examinations.

Mucocele of the Newborn.—Dr. C. W. Hawley, Chicago. This is a report of six cases of dacryocystitis occurring in infants. All were treated by the ordinary surgical measures of opening the abscess and securing drainage through the regular channels.

Discussion.—Dr. H. M. Starkey, Chicago, mentioned the scarcity of reference to such cases in the literature, and Drs. Wilder, Hale, Hubbell, Bennett, and Wescott all reported cases occurring in their practice.

The Phorometer or Maddox Rod, Which?—Dr. Alvin A. Hubbell, Buffalo. The author has made a comparative examination of the muscles in 140 cases, using the Maddox rod and the Stevens phorometer. In thirty-six cases the results were the same by either test. In heterophoric cases there was less heterophoria by the phorometer than by the rod test in seventy-one, and in eight there was more. The opposite form of heterophoria was shown in ten cases, while in seven of the orthophoric cases by the rod there were exophoria and right or left hyperphoria by the phorometer. Dr. Hubbell concludes that in view of the fact that by the rod test there is introduced absolutely no extraneous impulse to muscular contraction, and as its findings are in a large majority of cases equal to or in excess of those of the phorometer, it is a more precise and trustworthy guide in daily practice than the phorometer.

Discussion.—Dr. Lucien Howe did not believe that either of these methods could be trusted implicitly, and Dr. G. C. Savage urged the value of a monocular phorometer, which he exhibited to the society.

Adjournment.

NEWS ITEMS.

Personals and items of interest should be sent to Dr. Frank Allport, 92 State St., Chicago.

Dr. G. C. Savage, of Nashville, Tenn., has been elected Secretary of the Medical Faculty of Vanderbilt University.

Dr. H. O. Reik was elected Reporting Secretary of the Medical and Chirurgical Faculty of Maryland.

Upon February 14th, Prof. Liebreich celebrated his sixtieth birthday.

Dr. Witold-Narkiewicz-Jodko, formerly Professor of Ophthalmology at the University of Warsaw, is dead.

Dr. A. E. Bulson, of Fort Wayne, Ind., was elected treasurer of the Indiana State Medical Society, which held its semi-centennial meeting in Indianapolis June 1st and 2d.

Dr. William Oliver Moore has been appointed consulting ophthalmic and aural surgeon to the Flushing Hospital and Dispensary, Borough of Queens.

Justin McCarthy, the celebrated Irish historian, had a cataract removed from his right eye, June 8th, at the Royal Eye Hospital in London, and is now progressing satisfactorily.

Dr. E. T. Painter, an ophthalmologist and otologist of Redlands, Cal., has been compelled to retire from practice on account of ill health. His practice has been assumed by Dr. D. W. Hunt.

At the twenty-third semi-annual meeting of the South Californian Medical Society, held recently at San Diego, Dr. H. Bert Ellis, of Los Angeles, was elected president.

Society of Washington Ophthalmologists and Otologists.—At the annual meeting for the election of officers recently held in Washington, D. C., the following were elected: President, J. H. Bryan; vice-president, Wm. H. Wilmer; secretary, E. O. Belt; Swan M. Burnett, chairman executive committee.

Our European exchanges mention the silver wedding celebrations of the Dr. Duke Charles Theodore, of Bavaria and his wife, the Princess Marie, of Braganza. This titled confrère is a specialist in ophthalmology at Munich, and maintains a free clinic for the poor, dispensing charity among the needy patients with a lavish hand.—*Journal of American Medical Association.*

The Ophthalmic Record extends its deepest sympathy to Dr. B. E. Fryer, of Kansas City, on the loss of his wife, April 7th, after a short illness.

We are delighted to learn that Appleton & Co., have produced a second edition of Fuchs' Text-Book of Ophthalmology. It has been translated and revised by Dr. Duane of New York. The book should be owned by everyone who desires to follow the best and most advanced thought in ophthalmology.

A new ophthalmological society has sprung into existence in Moscow, the opening address being delivered by Prof. F. A. Jewezki, the subject being "The Development of Ophthalmology in Russia." The president is Prof. A. A. Krjukow, and vice-president, Prof. Jewezki.

We regret to record the death of Charles Bader, Consulting Ophthalmologist to Guy's Hospital. He died February 13th in England. Mr. Bader was a German by birth, but came to London in 1861. He was one of the most prominent ophthalmologists in England, and died at the age of seventy-two years.

The Royal London Ophthalmic Hospital.—Their royal highnesses the Duke and Duchess of York have consented to open the new building of the Royal London Ophthalmic Hospital on Monday, June 26th. This hospital was founded in 1804, and is generally known as Moorfields Eye Hospital. The new hospital is in City Road, about one mile from the present site in Blomfield street. Provision is being made for forty additional beds, and for a much larger out-patient department. The hospital at present relieves over 400 cases a day.

The following resolutions were presented at the last meeting of the Pennsylvania State Medical Society, by Dr. Louis J. Lautenbach, and passed by the Society. These same resolutions were presented at the general meeting of the American Medical Association at Columbus. We have just been informed that the resolutions were passed at Columbus by the American Medical Association, but whether such information is true or not, we are unable to positively state. The resolutions are as follows:

Resolved, That it is the opinion of the Medical Society of the State of Pennsylvania, that opticians are not qualified by their training, nor are they legally qualified, to perform the work of the oculist, and they should not be the consultants of regular physicians. Further it is

Resolved, That all physicians are requested to call their brother physicians in consultation thus discountenancing the growing pretences and assurances of the optician and his brother, the graduate optician, or, as he is beginning now to call himself, the "Ophthalmotrician."

Heterochromous Eyes.—"In a family I am attending," writes a correspondent, "there are three children. In the eldest and youngest (who are boys) the right eye is hazel and the left eye blue. In the second child (who is a girl) the right eye is blue and the left hazel. The father has blue eyes and the mother has hazel eyes." The condition recorded is uncommon but not extremely rare. Two forms of heterochromia are recognized by ophthalmologists—one, in which the eye only is parti-colored, a segment of the iris being of one color and the remainder of another color, a condition named "heterochromia unilateralis;" the other, in which as in this case the iris of one eye is different in color from that of the other, named "heterochromia bilateralis." The dark color of the iris in the Southern nations and in the yellow races, as in the Chinese, is due to pigment in the superficial cells and in the cells of the stroma. The blue iris chiefly in the Northern nations is due to the absence of pigment. Very dark irides are seen in the descendants of the Jutes in the Isle of Wight and, according to MM. Truc and Valude, in Bristol and in Hainault in Belgium, while the blue iris is not infrequent in Upper Italy, among the Basques, and even exceptionally in Morocco and Tunis. In France Topinard recognizes two zones, the northeast with light-colored or blue irides, and the southwest with brown eyes. It is not correct to say that all infants' eyes are gray at birth. We have seen them of a very dark color. It has been thought that eyes presenting a difference in color in their irides are not perfectly developed and that any operation

upon them should be undertaken with some hesitation and reserve, but it does not appear that there are any statistics bearing upon the question. The influence of heredity on the color of the eyes has been shown to be marked. When both parents have blue eyes, or both parents dark eyes, about 95 per cent of the offspring have irides of corresponding color, but when one parent has blue and the other dark irides the number of dark and light irides in the children is about equal.— *London Lancet.*

The meeting of the Ophthalmological Section of the American Medical Association in Columbus was, notwithstanding the intense heat, one of the largest and most interesting in its history. One hundred and thirty-three members registered, and quite a number of others were admitted to fellowship. One lady member was present, Dr. Mary Hollister, of Chicago.

Dr. Casey A. Wood officiated as chairman in his usual felicitous manner, and Dr. C. H. Williams, of Boston, performed the office of secretary with gratification to all. The Section was very fortunate in being able to retain the services of Dr. H. O. Reik, of Baltimore, as official stenographer, a position which he has filled for many years with perfect satisfaction to everyone. There is a rumor that Dr. Reik may not be able to act as stenographer much longer, owing to pressure of professional practice. We sincerely hope that this rumor is unfounded, as it would be almost impossible to fill his place. A stenographer for the Section must not only be an expert stenographer, but a scientific ophthalmologist, both of which qualifications Dr. Reik possesses.

The Section was disappointed in not hearing the addresses of Landolt, of Paris, and Dr. Oliver, of Philadelphia, both of which were looked forward to with much pleasure.

Those persons who were not only interested in ophthalmology, but otology as well, were delighted to find the two Sections working together in the same building and in close contact. We would suggest that this is an arrangement that should always be made, as it affords eye and ear surgeons an opportunity of taking advantage of both sections.

Mr. E. B. Meyrowitz, of New York, presented an unusually attractive display of instruments in the same building.

The new officers elected were Dr. H. V. Würdemann, of Milwaukee, for president; Dr. C. F. Clark, of Columbus, for secretary. Both of these gentlemen are too well known to require any eoniums from the Record. They are both well worthy of the honors, besides being gentlemen with

many warm friends, who extended to them their hearty congratulations and best wishes for the Section work in Atlantic City next year.

The usual dinner for the Ophthalmic Section was held at the Columbus Club, and was a delightful affair in every respect. At the request of Dr. Wood, Dr. Lucien Howe, of Buffalo, acted as toastmaster, and those acquainted with Dr. Howe's natural eloquence, ready wit and affability, can imagine how well he performed the function. The toasts were responded to by Dr. Wood on the "Section of Ophthalmology"; Dr. Reynolds, on the "Ex-Presidents": Dr. J. E. Brown, on the "City of Columbus:" Dr. C. H. Williams, on the "Ophthalmology of the Past"; Dr. J. A. White, on "Southern Ophthalmology": Dr. Edw. Jackson, on the "Ophthalmology of the Future"; Dr. Würdemann, on "Ophthalmic Journalism"; Dr. S. C. Ayres, on the "Future of the Ophthalmic Section." Songs by Drs. Marble, of New York, and Walter, of Chicago, and by the Section in general, interspersed the program from time to time.

Upon the announcement that the liquid refreshments for the Section were furnished by the chairman, Dr. Wood, the gentlemen seated around the table instantly arose and vociferously and enthusiastically sang, "For He's a Jolly Good Fellow." Dr. Risley wound up the dinner by making a little speech, and in closing proposed a vote of thanks to the toastmaster, which was responded to with great enthusiasm.

One of the pleasantest features of the meeting was the little lunch of the OPHTHALMIC RECORD, which was given in the Columbus Club Thursday noon. It was attended by Drs. Wood, Weeks, de Schweinitz, Savage, Hubbell, Würdemann, Gifford and Allport. The affairs of the RECORD were discussed over the lunch, its financial condition presented, and it was the unanimous sentiment of the editors and collaborators that the RECORD should be made even more interesting and instructive than ever before, and that the expense of so doing should be made a matter of secondary consideration. In view of this fact, we desire to enter a plea that every regular reader of the RECORD should try to find one new subscriber.

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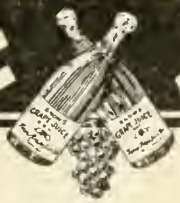

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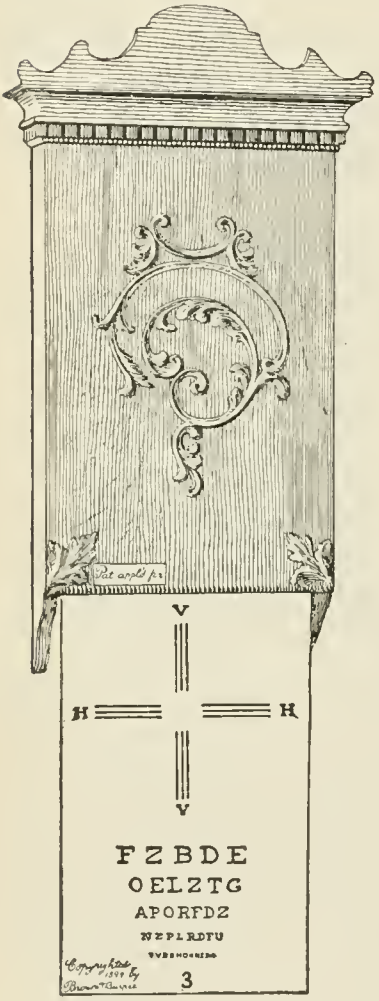

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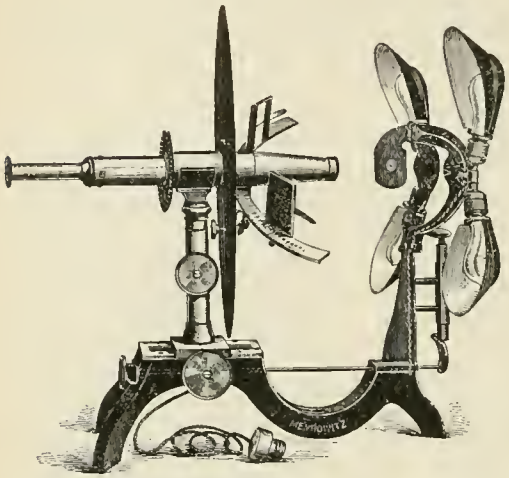

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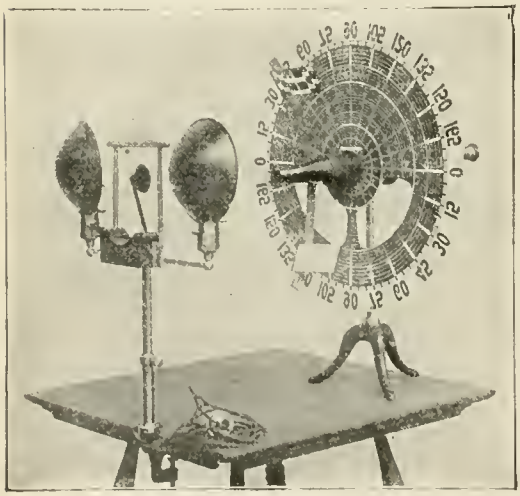

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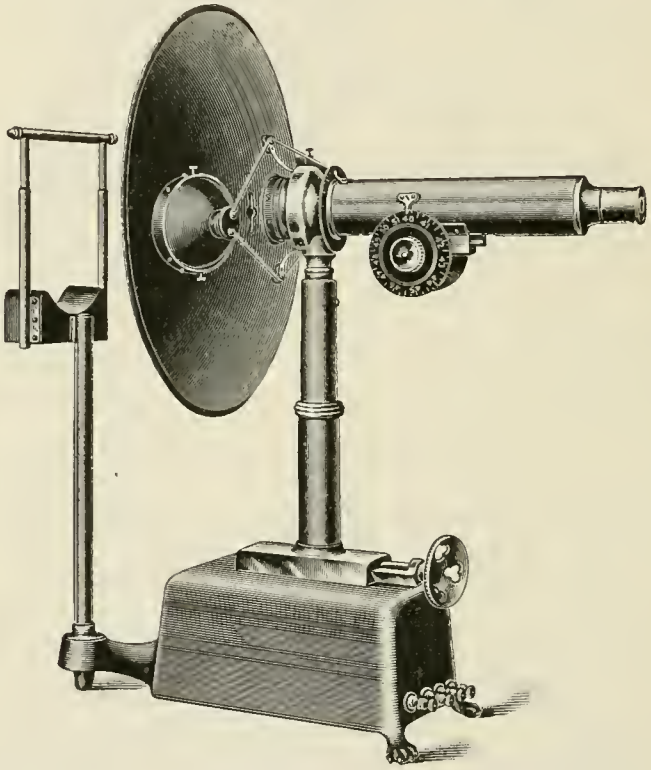

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